marantz®

Super Audio CD / Blu-Ray Disc player

UD9004

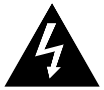
User Guide

❑ SAFETY PRECAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
THIS PRODUCT SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

❑ Laser Class (IEC 60825-1:2001)

“CLASS 1
LASER PRODUCT”

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings.
   Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel.
    Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Batteries shall not be exposed to excessive heat such as sunshine, fire or the like.

CAUTION:

- The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, tablecloths, curtains, etc.
- No naked flame sources, such as lighted candles, should be placed on the unit.
- Observe and follow local regulations regarding battery disposal.
- Do not expose the unit to dripping or splashing fluids.
- Do not place objects filled with liquids, such as vases, on the unit.

ATTENTION:

- La ventilation ne doit pas être gênée en recouvrant les ouvertures de la ventilation avec des objets tels que journaux, rideaux, tissus, etc.
- Aucune flamme nue, par exemple une bougie, ne doit être placée sur l’appareil.
- Veillez à respecter les lois en vigueur lorsque vous jetez les piles usagées.
- L’appareil ne doit pas être exposé à l’eau ou à l’humidité.
- Ne pas poser d’objet contenant du liquide, par exemple un vase, sur l’appareil.

PRECAUCIÓN:

- La ventilación no debe quedar obstruida por haberse cubierto las aperturas con objetos como periódicos, manteles, cortinas, etc.
- No debe colocarse sobre el aparato ninguna fuente inflamable sin protección, como velas encendidas.
- A la hora de deshacerse de las pilas, respete la normativa para el cuidado del medio ambiente.
- No exponer el aparato al goteo o salpicaduras cuando se utilice.
- No colocar sobre el aparato objetos llenos de líquido, como jarros.

CAUTION:

To completely disconnect this product from the mains, disconnect the plug from the wall socket outlet.
The mains plug is used to completely interrupt the power supply to the unit and must be within easy access by the user.

PRECAUTION:

Pour déconnecter complètement ce produit du courant secteur, débranchez la prise de la prise murale.
La prise secteur est utilisée pour couper complètement l’alimentation de l’appareil et l’utilisateur doit pouvoir y accéder facilement.

PRECAUCIÓN:

Para desconectar completamente este producto de la alimentación eléctrica, desconecte el enchufe del enchufe de la pared.
El enchufe de la alimentación eléctrica se utiliza para interrumpir por completo el suministro de alimentación eléctrica a la unidad y debe de encontrarse en un lugar al que el usuario tenga fácil acceso.

FCC INFORMATION (For US customers)

1. COMPLIANCE INFORMATION
Product Name: Super Audio CD / Blu-Ray Disk Player
Model Number: UD9004

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this product may not cause harmful interference, and (2) this product must accept any interference received, including interference that may cause undesired operation.

2. IMPORTANT NOTICE: DO NOT MODIFY THIS PRODUCT
This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modification not expressly approved by MARANTZ may void your authority, granted by the FCC, to use the product.

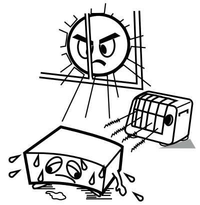
3. NOTE
This product has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This product generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this product does cause harmful interference to radio or television reception, which can be determined by turning the product OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the product into an outlet on a circuit different from that to which the receiver is connected.
- Consult the local retailer authorized to distribute this type of product or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

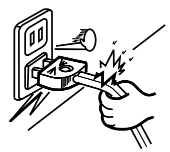
❑ Copyrights / Droits d’auteur

- It is prohibited by law to reproduce, broadcast, rent or play discs in public without the consent of the copyright holder.
- La reproduction, la diffusion, la location, le prêt ou la lecture publique de ces disques sont interdits sans le consentement du détenteur des droits d’auteur.

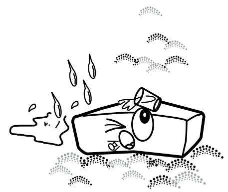
❑ NOTE ON USE / OBSERVATIONS RELATIVES A L’UTILISATION



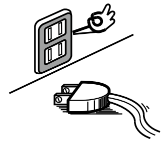
- Avoid high temperatures.
  Allow for sufficient heat dispersion when installed in a rack.
- Eviter des températures élevées.
  Tenir compte d’une dispersion de chaleur suffisante lors de l’installation sur une étagère.



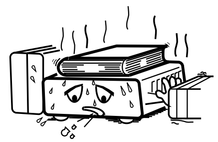
- Handle the power cord carefully.
  Hold the plug when unplugging the cord.
- Manipuler le cordon d’alimentation avec précaution.
  Tenir la prise lors du débranchement du cordon.



- Keep the unit free from moisture, water, and dust.
- Protéger l’appareil contre l’humidité, l’eau et la poussière.

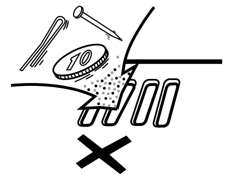


- Unplug the power cord when not using the unit for long periods of time.
- Débrancher le cordon d’alimentation lorsque l’appareil n’est pas utilisé pendant de longues périodes.

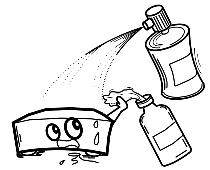


* (For apparatuses with ventilation holes)

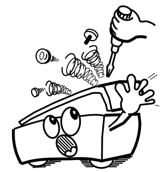
- Do not obstruct the ventilation holes.
- Ne pas obstruer les trous d’aération.



- Do not let foreign objects into the unit.
- Ne pas laisser des objets étrangers dans l’appareil.



- Do not let insecticides, benzene, and thinner come in contact with the unit.
- Ne pas mettre en contact des insecticides, du benzène et un diluant avec l’appareil.



- Never disassemble or modify the unit in any way.
- Ne jamais démonter ou modifier l’appareil d’une manière ou d’une autre.

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Features

■ **Universal Blu-ray Disc player that plays Super Audio CD and DVD-Audio formats**

☞page 3, 4 "Playable Media"

■ **The unit incorporates design concepts of the MARANTZ Super Audio CD Player, and produces higher sound quality from analog audio output by the application of MARANTZ design know-how, such as HDAM-SA2, use of premium parts, etc.**

■ **The decoder handles Dolby TrueHD and DTS-HD Master Audio, of course, as well as Dolby Pro Logic IIx and DTS Neo:6 decoding**

Compatible with Linear PCM 192 kHz (one of the BD audio formats) and multi-channel output (6-ch).

☞page 18 "Connecting to a Device with an Analog Multi-channel Audio Input Terminal"

■ **2-channel analog balanced transmission circuit installed**

By combining with the AV8003/MM8003, balanced transmission is enabled from the player's D/A converter up to power amplifier.

☞page 20 "Connecting to a Device with Analog 2-channel Audio Input Terminal with Balanced Cable"

■ **AV Pure Direct playback eliminates mutual interference of audio and video**

Separate audio and video output from two HDMI terminals. Performs clear signal transmission with minimal interference between signals.

☞page 14 "③ "AV Pure Direct" Connection"

■ **GUI installed with excellent operability and visibility**

☞page 24 "GUI Menu Operation"

■ **HDMI control ready**

☞page 49 "HDMI Control Function"

■ **Newly developed "Mechanism" with low center of gravity, vibration damping, quietness and high accuracy**

■ **3-block construction chassis thoroughly prevents mutual electrical and magnetic interference**

Getting Started

Thank you for purchasing this MARANTZ product. To ensure proper operation, please read these owner's manual carefully before using the product.
After reading them, be sure to keep them for future reference.

GUI ***Graphical User Interface***

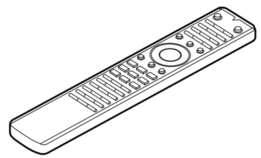
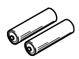
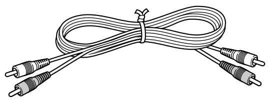
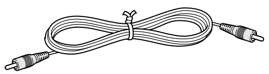
Use this manual in combination with the operating guide displayed on the GUI screen.

GUI Menu Operation (☞page 24)

Accessories

Check that the following parts are supplied with the product.

① Remote control 1
② AAA/R03 batteries 2
③ Power cord 1
④ Audio cable 1
⑤ Video cable 1
⑥ Owner's manual 1

①

②

④

⑤


Cautions on Handling

- **Before turning the power switch on**
  Check once again that all connections are correct and that there are no problems with the connection cables.
- Power is supplied to some of the circuitry even when the unit is set to the standby mode. When traveling or leaving home for long periods of time, be sure to unplug the power cord from the power outlet.

- **Image persistence (image burn-in)**
  Do not leave the still images of the disc menu, UD9004 menu, etc., displayed on the TV screen for long periods. This can result in image persistence (image burn-in) on the screen.

- **About Condensation**
  If the UD9004 unit is moved from a cold place to a warm place, or installed in a room subject to rapid temperature rise from a heater, etc., condensation (dew) may form on the internal parts of the unit (operating parts and lenses).
  If used in this condition, the UD9004 will not operate correctly and damage may result. If condensation is formed on the unit, leave the UD9004 unit for1 to 2 hours with the power OFF before use.

- **Cautions on using mobile phones**
  Using a mobile phone near this unit may result in noise. If so, move the mobile phone away from this unit when it is in use.

- **Moving the unit**
  Be sure to remove a disc, turn off the power and unplug the power cord from the power outlet. Next, disconnect the connection cables to other system equipment before moving the unit.

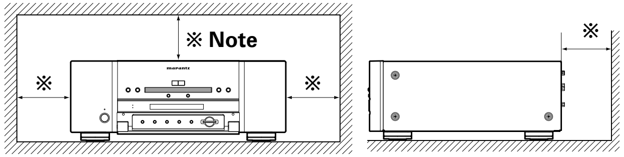
- **About Care**
- Wipe the cabinet and control panel clean with a soft cloth.
- Follow the instructions when using a chemical cleaner.
- Benzene, paint thinner or other organic solvents as well as insecticide may cause material changes and discoloration if brought into contact with the unit, and should, therefore, not be used.

- **Sufficiently ventilate the place of installation**
  If the unit is left in a room full of the smoke from cigarettes, etc., for long periods of time, the surface of the optical pickup could get dirty, in which case it will not be able to read the signals properly.

- Note that the illustrations in these instructions may differ from the actual unit for explanation purposes.

Cautions on Installation

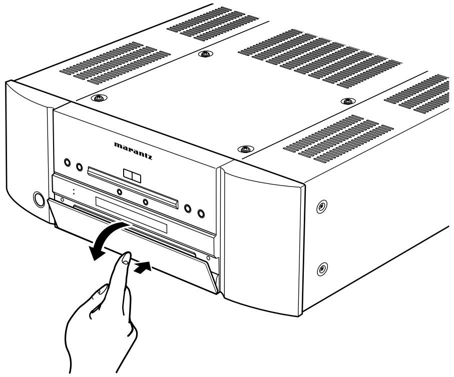
Note:
For proper heat dispersal, do not install this unit in a confined space, such as a bookcase or similar enclosure.



Do not place the UD9004 on an amp or other piece of equipment that generates heat.

Opening and closing the front panel door

When you want to use the controls behind the front panel door, open the door by gently pressing on the lower part of the panel. Keep the door closed when not using these controls.



CAUTION

- Be careful not to pinch your fingers between the door and the panel.

About Media

Playable Media

Discs

Playable Media		Playable formats/ modes	Playable region codes	Symbols Used in this Owner's Manual
BD-Video ∗1, ∗2	Blu-ray Disc	–	Include region A	BD
DVD-Audio ∗1	DVD AUDIO	–	–	DVD-A
DVD-Video ∗1, ∗2	DVD VIDEO		Include region ALL 1	DVD-V
DVD-R, DVD+R	DVD R	Video mode, AVCHD format	–	DVD
DVD-RW, DVD+RW	RW DVD+ReWritable, RW DVD+R, DVD RW, AVCHD			
Super Audio CD	SUPER AUDIO CD	–	–	SA-CD
CD	COMPACT disc DIGITAL AUDIO, HDCD	–	–	CD
CD-R	COMPACT disc DIGITAL AUDIO Recordable			
CD-RW	COMPACT disc DIGITAL AUDIO ReWritable			

∗1 : BD-Video/DVD-Audio/DVD-Video discs may not operate as described in this manual due to menu structure.
∗2 : The BD player and BD-Video disc, and DVD player and DVD-Video disc each have their region codes (code assigned for each region). Playback is not possible if the codes do not match.

NOTE

- A disc may not be accessible or play back incorrectly due to audio and video interruptions, etc., depending on the recording conditions when recorded with a BD recorder or DVD recorder.
- Unfinalised DVD-R/-RW/+R/+RW, and CD-R/-RW discs may not play back. Finalise discs before playing.

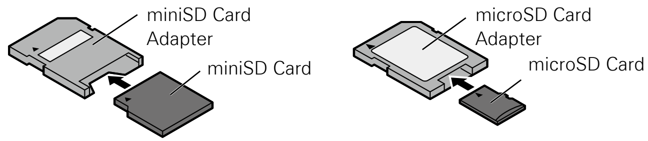
The following discs will not play back on this unit.

- BD-RE Ver1.0 (BD disc with cartridge)
- BD-ROM/BD-R/BD-RE discs containing recorded movie, still image, audio, etc., files
- BD-R/BD-RE in which BDMV/BDAV is recorded
- HD DVD
- DVD-RAM
- CDV (Only the audio part can be played)
- CD-G (Only the audio signals can be output)
- Non-standard CD (CD with copy protection, etc.)
- Unauthorised disc (Pirated disc)
- Disc with recording area less than 55 mm in diameter
- Video Single Disc (VSD) / CVD/ Video CD / Super Video CD / CompactDisc-Interactive (CD-I) / Photo CDs

SD Memory Cards

Playable cards	Symbols Used in this Owner's Manual	Playable files (Symbols Used in this Owner's Manual)
SD Memory Card (8 MB ~ 2 GB)	SD	MP3 WMA AAC LPCM JPEG DivX · Data recorded for BD BONUS VIEW use · See "Files" in "Playable Media" (☞page 4) for more information on files.
SDHC Memory Card *1 (4 GB)		
miniSD Card *2 (8 MB ~ 2 GB)		
microSD Card *2 (8 MB ~ 2 GB)		

*1 : This unit supports SD Memory Card with FAT16 file system, and SDHC Memory Card with FAT32 file system.
*2 : For miniSD Card and microSD Card adapter is necessary.



NOTE

- This unit does not support mini SDHC and micro SDHC Memory Card.
- Insert or remove a SD Memory Card while the power is in standby. If you insert a SD Memory Card while the power is ON, the SD Memory Card may not be read.
- The SD card used for the Bonus View function must have a capacity of 1GB or greater. Also the SD card must be initialized on the UD9004 (☞page 32).

Files

Playable files (Extension)	Playable Media: DVD-R/-RW/+R/+RW CD-R/-RW (DVD, CD)	Playable Media: SD Memory Cards (SD)	File specification	Symbols Used in this Owner's Manual
MP3 (.mp3)	○	○	• Sampling frequency: 44.1 kHz, 48 kHz • Bit rate: 64 kbps ~ 320 kbps (144 kbps non-compatible) • Audio type: MPEG 1 Audio Layer 3	MP3
WMA * (.wma)	○	○	• Sampling frequency: 44.1 kHz, 48 kHz • Bit rate: 48 kbps ~ 192 kbps • Audio type: WMA Version 9	WMA
AAC * (.m4a)	○	○	• Sampling frequency: 44.1 kHz, 48 kHz • Bit rate: 64 kbps ~ 192 kbps (Variable Bit Rate non compatible) • Audio type: AAC	AAC
LPCM (.wav)	○	○	• Sampling frequency: 44.1 kHz, 48 kHz • Bit length: 16 bit • Number of channels: 2 ch	LPCM
JPEG (.jpg/.jpeg)	○	○	• Maximum resolution: 4,096 x 4,096 pixels • Minimum resolution: 32 × 32 pixels • Maximum file size: 12 MB	JPEG
DivX® (.avi/.divx)	○	○	• Compatible versions: Up to DivX® 6 • Maximum size: 2 GB	DivX

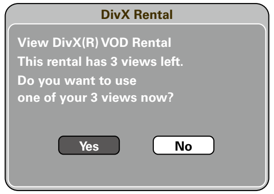
* : This unit cannot play back files recorded under DRM (Digital Rights Management) other than DivX® files.

- The abovementioned file type may also fail to play back depending on conditions at the time of recording.
- If characters not supported on the menu screen are included in a file name, title, artist name or album title, those are not displayed correctly.
- JPEG format images stored in progressive format cannot be played back.

About DivX® Video-on-Demand (VOD)

- When you purchase or rent a DivX® file through the official site of DivX® Video-On-Demand (VOD) services, a UD9004 registration code is required. For details, see "DivX® Registration" (☞page 31).
- A DivX® VOD file recorded with a different code from the UD9004 registration code cannot be played back.
- Some DivX® VOD files are restricted with limited playable times. If your DivX® VOD file has such a limit, the number of playable times is displayed on the DivX® VOD display screen.





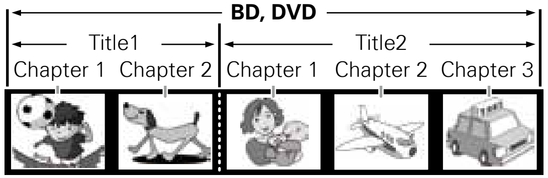
Use ◄, ► buttons to select "Yes" if you want to play back the file, or to select "No" if you do not want to play it back. The press **ENTER** button to confirm the selection.

About Discs and Files

❑ BD-Video, DVD-Video

BD/DVD-Video discs are divided into several large sections (titles) and small sections (chapter). These sections are all allotted numbers, called the title numbers and chapter numbers.

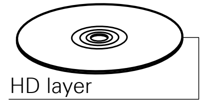
[Example]



❑ Super Audio CD

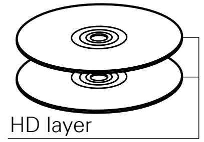
[Type of Super Audio CD]

- **Single layer disc**



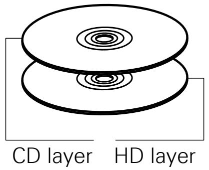
Single layer Super Audio CD with only an HD layer *.

- **Dual layer disc**



Super Audio CD with a double HD layer *, offering extended playing time and high sound quality.

- **Hybrid disc**

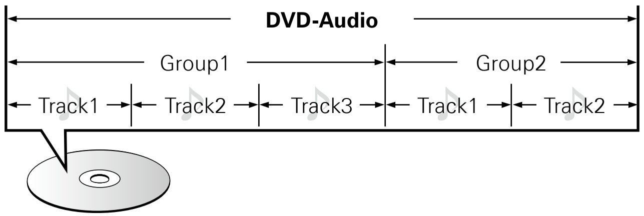


Two-layer Super Audio CD with an HD layer * and a CD layer. The signals on the CD layer can be played on a regular CD player.

* : All Super Audio CDs contain an HD (High Density) layer with high density Super Audio CD signals. This layer can contain a stereo channel area, a multi-channel area, or both a stereo channel and multi-channel area.

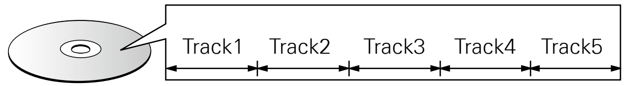
❑ DVD-Audio

DVD-Audio discs are divided into several large sections (groups) and small sections (tracks). These sections are all allotted numbers, called the group numbers and track numbers.



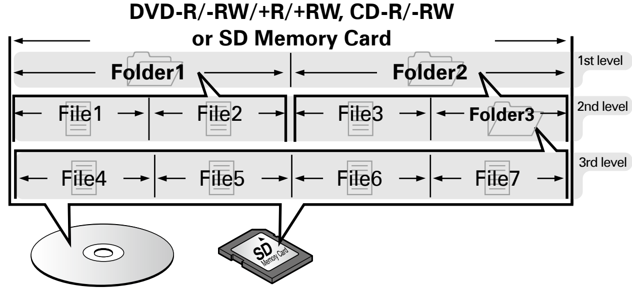
❑ CD

CDs are divided into several sections (tracks). These sections are all allotted numbers, called the track numbers.



❑ File

MP3/WMA/AAC/LPCM/JPEG/DivX® files recorded on DVD-R/-RW/+R/+RW, CD-R/-RW and SD Memory Card are divided into large segments (folders) and small segments (files). Files are stored in folders, and folders can be placed for storage in a hierarchy. The UD9004 can recognize up to 8 hierarchies of folder.



When writing MP3/WMA/AAC/JPEG/DivX® files on a CD-R/-RW disc, set the writing software's format to "ISO9660". The files may not play properly if they are recorded in other formats. For details, refer to the instructions of your writing software.

Cautions on Using Media

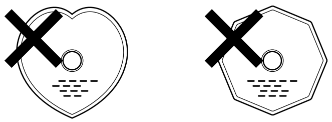
Inserting a Disc

- Set the disc with the labeled side facing up.
- Make sure the disc tray is fully open when inserting the disc.
- Place the disc horizontally in the tray, aligned with the tray guide.

If a disc that cannot be played is loaded or the disc is loaded up-sidedown, “NO DISC” is displayed on the player’s display.

NOTE

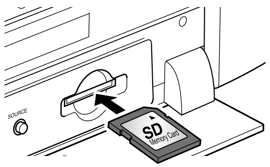
- Only load one disc at a time. Loading two or more discs can damage the unit or scratch the discs.
- Do not use cracked or warped discs or discs that have been repaired with adhesive, etc.
- Do not use discs on which the sticky part of cellophane tape or labels is exposed or on which there are traces of where labels have been removed. Such discs can get caught inside the player and damage it.
- Do not use discs with special shapes, as they could damage the player.



- Do not push the disc tray in by hand when the power is turned off. Doing so could damage the set.

Inserting an SD Memory Card

- Insert an SD Memory Card in the direction of the arrow into the SD CARD slot with the label facing up.



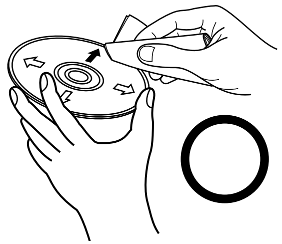
- Insert the card straight into SD CARD slot until it clicks.
- To remove the card, push it in the direction of insertion, and then release to eject.

About Handling of Media

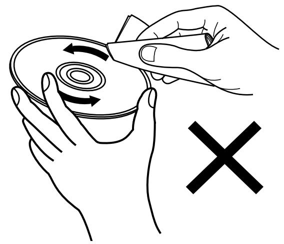
- Do not get fingerprints, oil or dirt on discs.
- Take special care not to scratch discs when removing them from their cases.
- Do not bend or heat discs.
- Do not enlarge the hole at the center.
- Do not write on the labeled (printed) surface with ball-point pens, pencils, etc., or stick new labels on discs.
- Water droplets may form on discs if they are moved suddenly from a cold place (outdoors for example) to a warm place, but do not try to dry them off using a hairdryer, etc.
- Do not eject an SD Memory Card or turn off the UD9004’s power while the card content is in playback. This may result in malfunction or loss of the card’s data.
- Do not attempt to open or modify SD Memory Cards.
- SD Memory Cards and files can be damaged by static electricity. Do not touch the metal contacts of an SD Memory Card with your fingers.
- Do not use warped SD Memory Cards.
- After use, be sure to remove any disc or SD Memory Card, and store it in its proper card case, to avoid dust, scratches and deformation.
- Do not store discs in the following places:
  1.Places exposed to direct sunlight for long periods of time
  2.Dusty or humid places
  3.Places exposed to heat from heating appliances, etc.

Cleaning Discs

- If there are fingerprints or dirt on discs, wipe them off before using the disc.
- Use a commercially available disc cleaning set or a soft cloth to clean discs.



Gently wipe the disc from the inside towards the outside.



Do not wipe with a circular motion.

NOTE

Do not use record spray, antistatic agents, or benzene, thinner or other solvents.

About Copyright

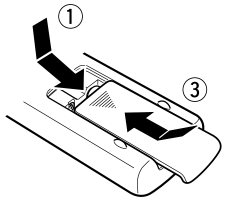
- Unauthorised copying, broadcasting, public performance and lending of discs are prohibited.
- This product incorporates copyright protection technology that is protected by U.S. patents and other intellectual property rights.
- Use of this copyright protection technology must be authorized by Macrovision, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision.
  Reverse engineering or disassembly is prohibited.
- Portions of this product are protected under copyright law and provided under license by ARIS/SOLANA/4C.

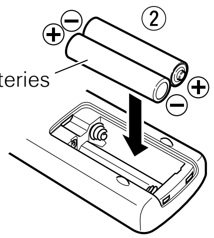
About the Remote Control Unit

Inserting the Batteries

① Remove the remote control unit's rear cover.

② Set three AAA/R03 batteries in the battery compartment in the indicated direction.





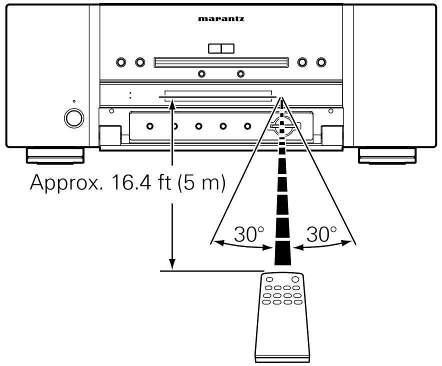
③ Put the rear cover back on.

NOTE

- Use AAA/R03 batteries in this remote control.
- Replace the batteries with new ones if the set does not operate even when the remote control unit is operated close to the unit. (The supplied batteries are only for verifying operation.)
- When inserting the batteries, be sure to do so in the proper direction, following the "⊕" and "⊖" marks in the battery compartment.
- To prevent damage or leakage of battery fluid:
  Do not use a new battery together with an old one.
  Do not use two different types of batteries.
  Do not attempt to charge dry batteries.
  Do not short-circuit, disassemble, heat or dispose of batteries in flames.
- If the battery fluid should leak, carefully wipe the fluid off the inside of the battery compartment and insert new batteries.
- Remove the batteries from the remote control unit if it will not be in use for long periods.
- Used batteries should be disposed of in accordance with the local regulations regarding battery disposal.

Operating Range of the Remote Control Unit

Point the remote control unit at the remote sensor when operating it.



NOTE

The set may function improperly or the remote control unit may not operate if the remote control sensor is exposed to direct sunlight, strong artificial light from an inverter type fluorescent lamp or infrared light.

Remote Control Settings (Remote Control Side)

Switches when the UD9004's remote control operates another MARANTZ BD players in the vicinity.

Set the remote control code simultaneously on the main unit, too.

For how to set codes, see GUI menu: "Other Setup" – "Remote Control Setting" – "Remote ID" (☞page 32).

【Remote control code setting】

- The supplied remote control has two remote control code settings: BD 1 and BD 2.
- The code is set to "BD 1" at the factory.
- To set the code to "BD 2", hold the **Stop** (■) button and the **Number** button [**2**] pressed for more than five seconds.
- To set (return) the code to "BD 1", hold the **Stop** (■) button and the **Number** button [**1**] pressed for more than five seconds.

✎

- If the signal code of the remote control does not match the signal code of the unit, the remote control code set on the unit is shown on the display.
  【Example】
  If the code setting on the unit is "BD 1", and the setting on the remote control is "BD 2", "BD 1" is shown on the display.

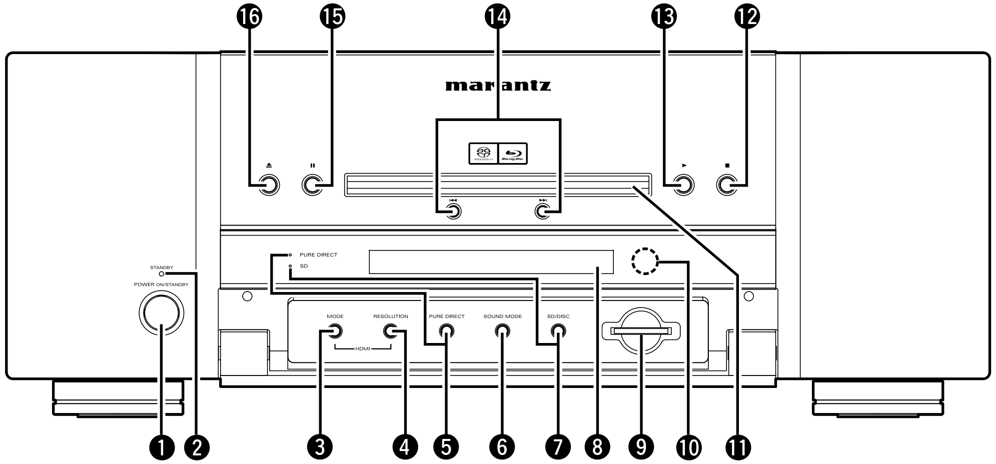
NOTE

Match the signal code of the remote control with the signal code of the unit. If the remote control code is different, you cannot operate the UD9004 with the remote control.

Part Names and Functions

Front Panel

For buttons not explained here, see the page indicated in parentheses ( ).

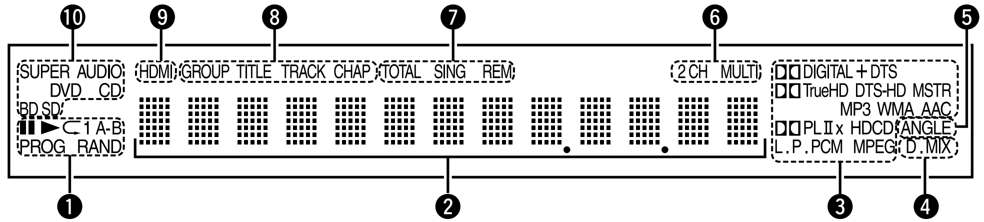


❶ **Power operation button (POWER ON/STANDBY)** (22)
❷ **STAND BY indicator** (22)
❸ **HDMI MODE button** (13)
❹ **HDMI RESOLUTION button** (39)
❺ **PURE DIRECT button, indicator** (40)
❻ **SOUND MODE button** (39)
❼ **SD/DISC button, SD indicator** (36)
If an SD card is inserted in the SD CARD slot, and SD is selected with the **SD/DISC** button on the front panel, the indicator lights.
❽ **Display** (8)
❾ **SD CARD slot** (6)
❿ **Remote control sensor** (7)
⓫ **Disc tray** (6)
⓬ **Stop button (■)** (43)
⓭ **Play button (►)** (39)
⓮ **Revers-skip/Forward-skip buttons (I◄◄, ►►I)** (43)
⓯ **Pause/Still button (❚❚)** (43, 45)
⓰ **Disc tray open/close button (⏏)** (36)

✎

When power is in standby mode, press ⓭ and ⓰ to turn the power on.

Display



❶ **Playback mode indicators**
► : During Playback
❚❚ : During pause and step-by-step playback
PROG : During program playback
RAND : During random playback
⊂1 A-B : During repeat playback

❷ **Information display**
Displays various information or playback elapsed time and so on of the disc.

❸ **Playback format indicators**

❹ **Downmix indicator**
Displayed when playing back downmix permitted audio.

❺ **Angle information indicator**
Displayed when a scene on the currently playing disc has been shot at various angles.

❻ **Audio channel indicators**
Displays the number of audio signal channels during playback.
2CH : 2-channel playback
MULTI : Multi-channel playback

❼ **Time mode indicators**
TOTAL : Total time of Super Audio CD and CD
SING : Elapsed time of title/chapter/track/file being played back
REM : Remaining time of title/chapter/track/file being played back

❽ **Group/Title/Track/Chapter indicators**

❾ **HDMI output indicator**
Display when HDMI video or audio signals are being output.

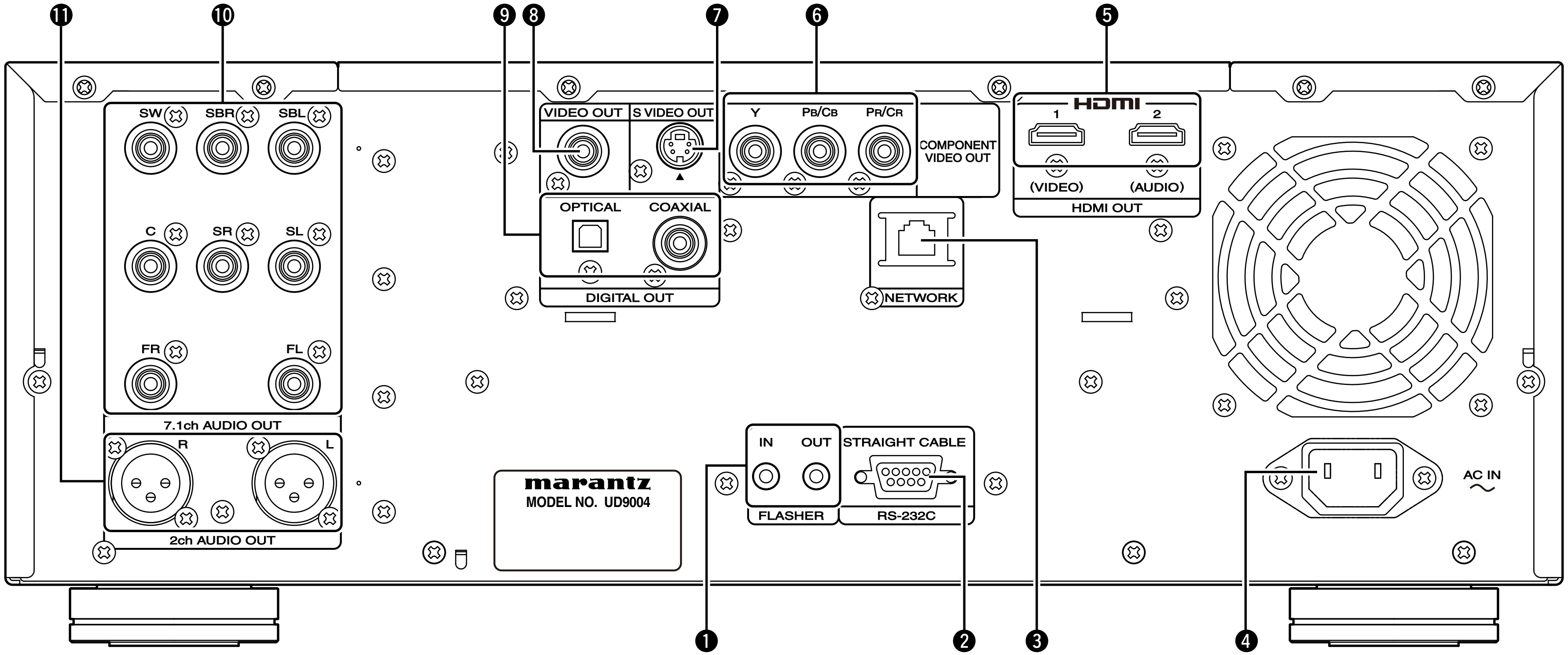
✎

Does not display when the HDMI cable is not correctly connected and when the HDMI connection is not verified.

❿ **Media indicators**
BD : BD
DVD : DVD-Video, DVD-R/+R/-RW/+RW
DVD AUDIO : DVD-Audio
SUPER AUDIO CD : Super Audio CD
CD : CD
SD : SD Memory Card
Displays the inserted media.

Rear Panel

For buttons not explained here, see the page indicated in parentheses ( ).



❶ **FLASHER IN/OUT jacks**
Connect an external control device or other device for servicing. (Use a straight cable for the connection.)

❷ **RS-232C connector**
Extension connector for future use.

❸ **NETWORK connector** ··························(21)

❹ **AC inlet (AC IN)** ··························(22)

❺ **HDMI OUT connectors** ··························(13, 14)
Signals output from each terminal change depending on the HDMI mode setting.

❻ **COMPONENT VIDEO OUT connectors** ··························(19)

❼ **S-VIDEO OUT connector** ··························(19)

❽ **VIDEO OUT connector** ··························(19)

❾ **DIGITAL OUT OPTICAL/COAXIAL connectors** ··························(17)

❿ **7.1ch AUDIO OUT connectors** ··························(18)

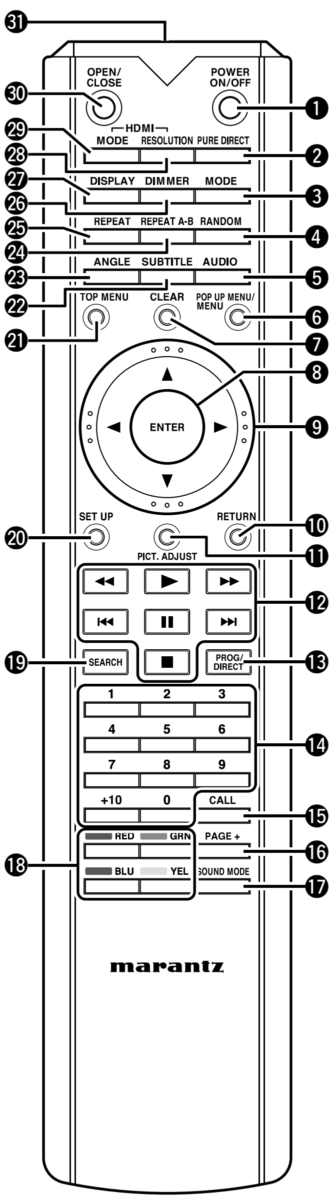
⓫ **2ch XLR AUDIO OUT connectors** ··························(20)
For software recorded in multi-channel, analog signals that have been down-mixed into 2 channels are output.

NOTE

- Do not touch the inner pins of the connectors on the rear panel. Electrostatic discharge may cause permanent damage to the unit.
- Do not put your finger or foreign object in the fan opening. Doing so could cause injury or unit failure.

Remote Control Unit

For buttons not explained here, see the page indicated in parentheses ( ).



1 **POWER ON/OFF buttons** ··· (22)
2 **PURE DIRECT button** ··· (40)
3 **MODE button** ··· (33)
4 **RANDOM button** ··· (46)
5 **AUDIO button** ··· (47)
6 **POP UP MENU/MENU button** ··· (37)
7 **CLEAR button** ··· (35)
8 **ENTER button** ··· (24)
9 **Cursor buttons (▲, ▼, ◄, ►)** ··· (24)
10 **RETURN button** ··· (24)
11 **PICT. ADJUST button** ··· (35)
12 **Fast-reversing button (◄◄)** ··· (45)
12 **Fast-forwarding button (►►)** ··· (45)
12 **Revers-skip button (I◄◄)** ··· (43)
12 **Forward-skip button (►►I)** ··· (43)
12 **Play button (►)** ··· (39)
12 **Pause/Still button (II)** ··· (43, 45)
12 **Stop button (■)** ··· (43)
13 **PROG/DIRECT button (PROG/DIRECT)** ··· (47)
14 **Number buttons (0 ~ 9, +10)** ··· (37)
15 **CALL button** ··· (47)
16 **PAGE + button** ··· (40)
17 **SOUND MODE button** ··· (39)
18 **RED/GRN/YEL/BLU buttons**
19 **SEARCH button** ··· (39)
20 **SETUP button** ··· (23)
21 **TOP MENU button** ··· (37)
22 **SUBTITLE button** ··· (48)
23 **ANGLE button** ··· (49)
24 **REPEAT A-B button** ··· (46)
25 **REPEAT button** ··· (46)
26 **DIMMER button** ··· (49)
27 **DISPLAY button** ··· (36)
28 **HDMI RESOLUTION button** ··· (15)
29 **HDMI MODE button** ··· (13)
30 **OPEN/CLOSE button (⏏)** ··· (36)
31 **Remote control signal transmitter** ··· (7)

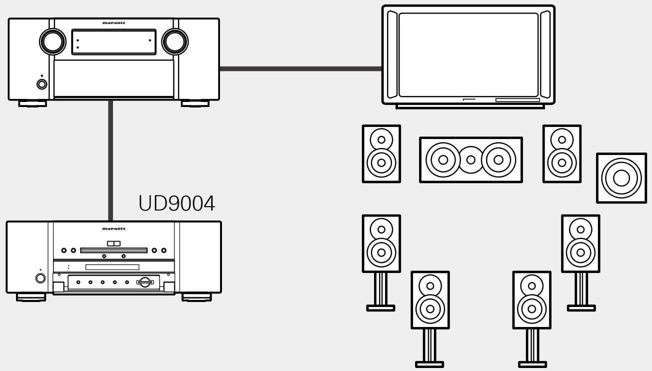
- When power is in standby, press 30 and 12 (►) to turn the power on.
- You can use 18 when operating the BD popup menu screen, etc.

Connections

Connect the UD9004 as follows before using. Make connections according to the equipment you are connecting.
Some UD9004 settings may be necessary depending on the connection method. Check each connection item for more information.

1 Home Theater Playback – Playing Back Using Multi-Channel System –

☞page 13



Multi-channel Audio + Video

- **HDMI connection**
  "Using an HDMI Cable to Connect to an AV Amp or Television" (☞page 13)

or

Multi-channel Audio

- **Digital audio connection**
  "Connection to an AV Amp with No HDMI Audio Input" (☞page 17)
- **Analog 7.1ch connection**
  "Connecting to a Device with an Analog Multi-channel Audio Input Terminal" (☞page 18)

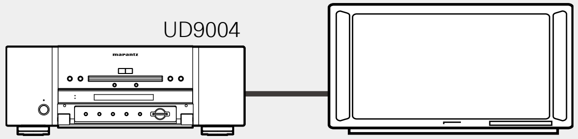
To output sound from a disc while maintaining the same sound quality as the disc sound, some settings of Audio Setup are disabled as default (☞page 25 ~ 27).
To enable the settings of Audio Setup, set Source Direct to "Off" (☞page 26).

Video

- **Analog video connection**
  "Connection to an AV Amp with No HDMI Video Input" (☞page 19)

2 Playing Back with a Direct Connection to a TV

☞page 19



Audio + Video

- **HDMI connection** (☞page 14)

or

Audio

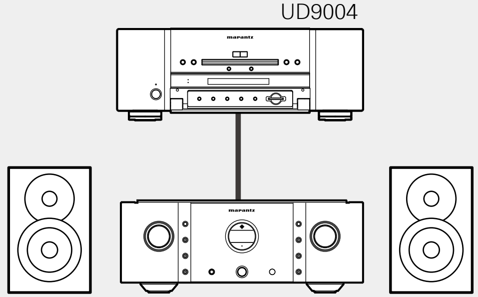
- **Analog audio connection** (☞page 19)

Video

- **Analog video connection** (☞page 19)

3 Playing Back 2-Channel Audio

☞page 20



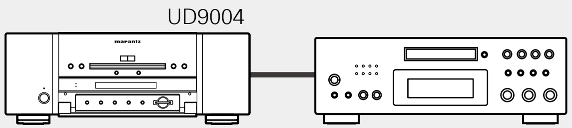
- **2ch balanced connection**
  "Connecting to a Device with Analog 2-channel Audio Input Terminal with Balanced Cable" (☞page 20)

or

- **2ch stereo pin plug cable (unbalanced) connection**
  "Connecting to a Device with Analog 2-channel Audio Input Terminal with Stereo Pin Plug Cable" (☞page 20)

4 Recording a CD

☞page 20



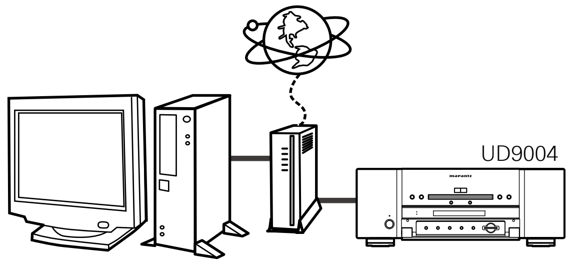
- **Digital output**
  "Connecting to a Digital Recording Device" (☞page 20)

- **Connecting the Power Cord**
- **Once Connections are Completed**

☞page 22

5 Upgrading to the UD9004's Latest Software Version

☞page 21



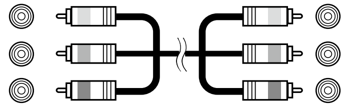
- **LAN connection**
  "Connecting to the Network" (☞page 21)

Preparation

Cables Used for Connections

Prepare the cables to match the devices you are to use.

Audio and video cables	
HDMI connections (Sold separately)	 19-pin HDMI cable
Audio cables	
Coaxial digital connections (Sold separately)	 Coaxial digital (75 Ω/ohms pin-plug) cable
Optical digital connections (Sold separately)	 Optical cable
Analog connections (balanced) (Sold separately)	 Balanced cable
Analog connections (stereo, surround) (1 included)	 Stereo pin plug cable
Analog connections (center, subwoofer) (Sold separately)	 Pin-plug cable

Video cables	
Component video connections (Sold separately)	 (Y) (PB/CB) (PR/CR) Component video (75 Ω/ohms) cable
S-Video connections (Sold separately)	 S-Video cable
Video connections (Included)	 75 Ω/ohms pin-plug video cable
Other cables	
Network connections (Sold separately)	 Ethernet cable

NOTE

- Do not plug the power cord into the power outlet until all connections are completed.
- Be sure to read the owner's manuals for the connected devices.
- First check the connection channels, and then correctly connect the input and output channels.
- Do not bundle the power cord together with the connection cables. This can result in noise.

- Use only HDMI (High Definition Multimedia Interface) cable that bears the HDMI logo (genuine HDMI product). Using cable without the HDMI logo (non-genuine HDMI product) may result in abnormal playback.
- When outputting deep colour or 1080p, etc., we recommend you use High Speed HDMI cable for enhanced high-quality playback.

1. Home Theater Playback – Playing Back Using Multi-channel System –

Using an HDMI Cable to Connect to an AV Amp or Television

Default settings are underlined.

- **There are 5 ways to connect (① – ⑤) using HDMI cable (sold separately). Configure appropriate connection for HDMI mode first and then set HDMI mode using HDMI MODE button.**
- **When connecting with HDMI cable, perform the settings in "Required Settings for HDMI Connection" (☞page 15).**
- **UD9004 automatically detects audio/video signal supported by the connected HDMI device and outputs the signal. To change the setting, see "HDMI Setup" on the GUI menu (☞page 25, 26).**

HDMI mode		Output signal from each terminal	
		HDMI OUT 1	HDMI OUT 2
① HDMI Auto (Dual) (HDMI Dual)	Used for multi-channel playback using 2 devices.	Video + Audio	Video + Audio
② HDMI Auto (Independent) (HDMI Inde.)	Used for multi-channel playback using one device and 2-channel playback using the other unit. (＊1)	Video + Audio	Video + Audio
③ AV Pure Direct (AV P.Direct)	Used for the highest quality playback using different HDMI cables to connect video and audio separately.	Video	Audio
④ HDMI1	Used for connecting only 1 device.	Video + Audio	Does not output
⑤ HDMI2	Used for connecting only 1 device.	Does not output	Video + Audio
⑥ HDMI Off	Used when HDMI connection is not used.	Does not output	Does not output

＊1 : If the number of channels supported by 2 devices is the same, multi-channel audio is output to both devices.

NOTE

To disable video or audio output from the HDMI terminal, set "Video Out" of "Pure Direct Setup", which outputs high quality analog audio to "Off". To enable the HDMI signal output, set the Pure Direct mode to one of the following setting:

- Pure Direct mode "Off" or "User Preset 1" or "User Preset 2" (※)
  ("Playing Back High-Quality Audio (Pure Direct Function)" ☞page 40)

※ Do this after setting "Pure Direct Setup" – "User Preset 1" or "User Preset 2" – "Video Out" on GUI menu to "On" (☞page 30).

Video and Audio Output Signal when Outputting to 2 HDMI Devices (HDMI Auto (Dual) Mode and HDMI Auto (Independent) Mode)

❑ About Video Signal

When "About HDMI Video Resolution Setting" (☞page 15) is set to "Auto", of the resolution supported by both of the 2 connected devices, the UD9004 outputs the highest resolution video signal to both devices.

❑ About Audio Signal

(1) Check audio signals that can be input by the device to be connected.

- **Audio format**··························Bit stream (Dolby Digital, DTS etc.), Linear PCM, etc.
- **Number of channels**

(2) About number of output channels of multi-channel audio

When outputting bitstream signals to two HDMI devices, the signals are output to both HDMI devices if they both support bitstream signals. Of only one device support bit stream, LPCM is output to the device, which does not support bit stream.

When outputting LPCM signals to two HDMI devices, it is not possible to output multi-channel audio signals with different numbers of channels to the two HDMI devices.

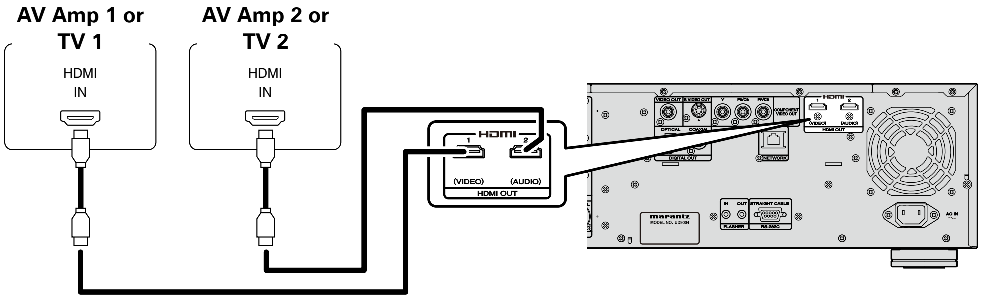
When the number of channels of multi-channel audio supported by the connected 2 HDMI devices are different, the audio signal output to each mode becomes as follows:

- **HDMI Auto (Dual) :**
  Outputs multi-channel audio of less number of channels to both devices.
  If the supported number of channels is 7.1 channel and 5.1 channel, respectively, 5.1 channel audio is output. If the supported number of channels is multi-channel and 2-channel (or 2.1-channel), multi-channel and 2-channel are output.
- **HDMI Auto (Independent) :**
  Multi-channel audio is output as is to the device, which supports more number of channels.
  LPCM audio of 2-channel is output to the other device.
  We recommend you use this mode when outputting to both an AV Amp and TV.

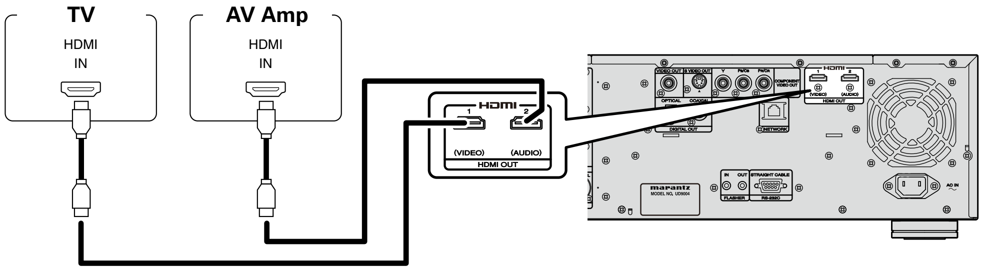
❑ About Audio Format to be Output

Audio format supported by 2 connected HDMI devices is output.
When multi-channel audio is output, the output channel is as described above (2).

① "HDMI Auto (Dual)", ② "HDMI Auto (Independent)" connection



③ "AV Pure Direct" connection

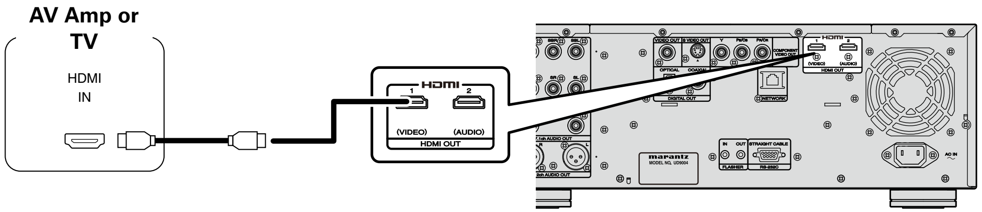


❑ About Video Signal

When "About HDMI Video Resolution Setting" (☞page 15) is set to "Auto", of the resolution supported by both connected devices, the video signal of the highest resolution is output to both devices. (From the HDMI 2 terminal, audio signal and black video signal are output.)

④ "HDMI 1", ⑤ "HDMI 2" Connection

[Example] "HDMI 1" connection



⑥ During "HDMI Off"

Audio/video is not output from the HDMI terminal.

❑ Connection to a device with a DVI-D terminal

If you use a HDMI/DVI-D conversion cable (sold separately), HDMI video signals are converted to DVI-D signals, enabling connection to a device with a DVI-D terminal.

NOTE

- In this case, the audio signal is not output. Make the appropriate audio connections for your devices. (☞page 15 ~ 21).
- The video signal will be in RGB format.
- You cannot output to a DVI-D device that does not support HDCP (high-bandwidth digital content copyright protection system).
- Video may not be output depending on the combination of devices.

Required Settings for HDMI Connection

Setting HDMI Video Output

❑ Make HDMI Output Signal and HDMI Control Function Settings

"HDMI Setup" (☞page 25, 26)

❑ Make the Video Output Signal Setting for the Connected Television

"Video Setup" (☞page 26)

❑ About HDMI Video Resolution Setting

- Change the HDMI video resolution by pressing **HDMI RESOLUTION** button. Switch the output mode as follows. Default settings are underlined.

<u>Auto</u> (Auto) → Bron direct (Source Direct) → 480/576i (480/576 interlaced) → 480/576P (480/576 progressive) → 720P (720 progressive) → 1080i (1080 interlaced) → 1080P (1080 progressive) → 1080P24 (1080 progressive, 24-frame) → Auto

- If the HDMI resolution is not set to "Auto", set it to correspond with the resolution of your television. Images will not be projected normally if the television resolution and UD9004's output resolution do not match.
- Audio and video will be temporarily interrupted if the power of the connected device currently playing back is turned off, or input is switched.
- When you change the HDMI video resolution of the UD9004, it takes from a few seconds up to about 10 seconds for validation between the UD9004 and the connected device. Audio/video is not output during this period.
- When outputting deep colour or 1080p, etc., we recommend you use High Speed HDMI cable for enhanced high-quality playback.

NOTE

When the HDMI video resolution is set to "1080P24", HDMI video signals are output from the UD9004 with a resolution of 1080P and a frame rate of 24 frames per second, regardless of the video signals on the disc being played. Because of this, when playing discs containing video signals recorded with a frame rate of something other than 24 frames per second, the movement of the picture may be unnatural. If this happens, set the HDMI video resolution to something other than "1080P24".

Setting HDMI Audio Output

- When you press **SET UP** button and set "HDMI Setup" – "Audio Setup" to "Auto" (☞page 25) on the GUI menu, audio mode is set according to the connected device.
- When you want to set the HDMI audio output separately, change according to the following table.
- Refer to the owner's manual of the connected device regarding HDMI audio input specifications compatible with the connected device.

Device to be connected	Setting items	About output signal and speaker settings
Device with the following built-in decoder · Dolby TrueHD · Dolby Digital Plus · Dolby Digital · DTS-HD · DTS	<u>**Auto**</u>	UD9004 outputs a bitstream signal that is decoded by the connected device. ※ In this case, you cannot make a speaker setting for HDMI audio with the UD9004. Make the setting with the connected device. ※ When outputting the Dolby TrueHD or DTS-HD audio, press **MODE** button and set "BD Audio Mode" to "HD Audio Output" (☞page 33).
Device compatible with multi-channel HDMI audio input, but not capable of speaker setting for each channel	**Multi LPCM BM On**	Outputs multi-channel Linear PCM audio signals with speaker setting by the UD9004. ※ For speaker setting, on the GUI menu, "Audio Setup" – "7.1ch Audio Out" – "Multi Channel" – "Speaker Configuration" (☞page 27). To output sound from a disc while maintaining the same sound quality as the disc sound, some settings of Audio Setup are disabled as default (☞page 25 ~ 27). To enable the settings of Audio Setup, set Source Direct to "Off" (☞page 26). ※ BM : Bass Management (means multi-channel speaker setting)
Device compatible with multi-channel HDMI audio input, and capable of speaker setting for each channel	**Multi LPCM BM Off**	Output of multi-channel Linear PCM audio signals from the UD9004. Perform the speaker setting with the connected device. ※ BM : Bass Management (means multi-channel speaker setting)
Device compatible with 2-channel HDMI audio input	**2ch**	Downmixed 2-channel Linear PCM audio signals are output from the UD9004. Perform the speaker setting with the connected device.
Device not compatible with HDMI audio signal input	**Mute**	Audio signal are not output from the UD9004's HDMI terminal. Only video signals are output from the HDMI terminal. ※ Make the audio connection.

❑ Audio signal from the HDMI output terminal

You can change the audio format and playback number of channels according to the specifications of the device to which the UD9004's HDMI audio output signals are input. Make settings while checking the specifications of the audio device to be connected as well as the audio format/number of channels stored in media and files for playback.

Media/Files	Audio format	Setting "HDMI Setup" – "Audio Setup" (☞page 25) on the GUI menu		
		Auto	Multi LPCM BM On/Off	2ch
BD	Dolby Digital	Dolby Digital∗1	Multi LPCM	2 ch Downmix LPCM
	Dolby Digital Plus	Dolby Digital Plus∗1		
	Dolby TrueHD	Dolby TrueHD∗1		
	DTS	DTS∗1		
	DTS-HD	DTS-HD∗1		
	LPCM	Multi LPCM		
AVCHD	Dolby Digital	Dolby Digital	Multi LPCM	2 ch Downmix LPCM
	LPCM	Multi LPCM		
DVD-Video	Dolby Digital	Dolby Digital		
	DTS	DTS		
	LPCM, MPEG	2 ch LPCM		
DVD-Audio	LPCM, PPCM	Multi LPCM		2 ch Downmix LPCM
Super audio CD∗2	Multi area			
	Stereo area	2 ch LPCM		
	CD layer			
DivX®	Dolby Digital	Dolby Digital	Multi LPCM	2 ch Downmix LPCM
	MP3, MP2	2 ch LPCM		
CD, MP3, WMA, AAC, LPCM				
DTS-CD		DTS	Multi LPCM	2 ch Downmix LPCM

∗1 : Multi LPCM signals are output when "BD Audio Mode" is set to "Mix Audio Output " (☞page 33).
Multi LPCM signals are output when outputting HDMI video signals with resolutions of 480i/576i or 480p/576p.

∗2 : Super Audio CD audio signals are output at 44.1 kHz 16-bit.

Even if "HDMI Setup" – "Audio Setup" on the GUI menu is set to "Auto" (☞page 25), multilinear PCM or downmixed 2-channel linear PCM signals are output if a device that does not support bitstreams is connected.

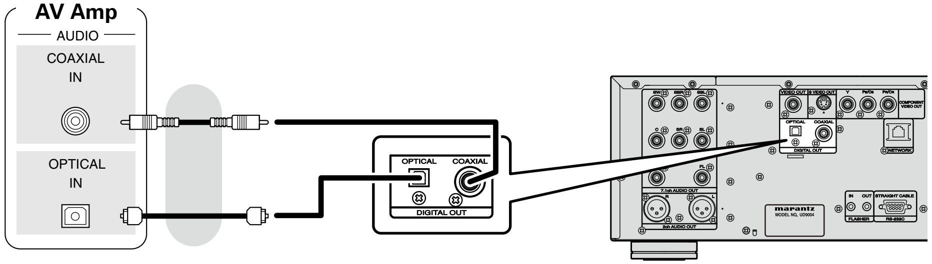
Copyright protection system
In order to play back digital video and audio such as BD-Video or DVD-Video via HDMI connection, both the player and TV or the AV Amp need to support the copyright protection system known as HDCP (High-bandwidth Digital Content Protection System). HDCP is copyright protection technology comprised of data encryption and authentication of the connected AV device. The UD9004 supports HDCP.

NOTE

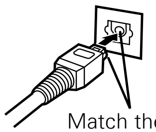
- If a device that does not support HDCP is connected, video and audio are not output correctly. Read the owner's manual of your television or AV Amp for more information.
- The audio signal from the HDMI output terminal (sampling frequency, number of channels, etc.) may be limited by the HDMI audio specifications of the connected device regarding permissible inputs. For example, if the HDMI audio specification of the connected device is 5.1 channels, 5.1-channel audio will be automatically output even when playing back 7.1 channels by the UD9004. In this case, analog audio output will also be 5.1-channel.
- Audio signal input may not be supported depending on the HDMI compatible monitor (projector, etc.) being used.
  When the UD9004 is connected to this kind of device, audio signals are not output from the HDMI terminal.

Connection to an AV Amp with No HDMI Audio Input

When playing back Dolby Digital Plus/Dolby TrueHD/DTS-HD audio recorded on a BD disc, the UD9004 outputs Dolby Digital or DTS bitstream from its digital audio output terminal.



NOTE



- Dolby TrueHD/Dolby Digital Plus/DTS-HD audio signals are not output with this connection.
  When outputting Dolby TrueHD/Dolby Digital Plus/DTS-HD audio signals, do so with an HDMI connection (☞page 13, “Using an HDMI Cable to Connect to an AV Amp or Television”).
- Super Audio CD’s DSD signal cannot be output. Also, during CD layer playback, 44.1 kHz/16-bit Linear PCM is output.
- Do not output DTS audio signals to an AV Amp that does not support DTS. Playing back a BD/DVD disc with recorded DTS content can generate noise and even damage your speakers.
- When connecting with an optical transmission cable (sold separately), make sure the plug shape aligns with the socket, and insert fully.

Audio Signal from the Digital Audio Output (Optical/Coaxial) Terminal

The UD9004 can convert and output digital audio signal format recorded on media.
Convert the digital audio signal in accordance with the specifications of the device that is to input digital audio output signals from the UD9004.

<table>
<tr><th rowspan="2">Media/Files</th><th rowspan="2">Audio format</th><th colspan="2">Setting “Audio Setup” – “Digital Out” (☞page 29) on the GUI menu</th></tr>
<tr><th>Bitstream</th><th>PCM/PCM Down Sampling</th></tr>
<tr><td rowspan="6">BD</td><td>Dolby Digital</td><td rowspan="3">Dolby Digital∗1</td><td rowspan="12">2 ch Downmix LPCM</td></tr>
<tr><td>Dolby Digital Plus</td></tr>
<tr><td>Dolby TrueHD</td></tr>
<tr><td>DTS</td><td rowspan="2">DTS∗1</td></tr>
<tr><td>DTS-HD</td></tr>
<tr><td>LPCM</td><td>2 ch Downmix LPCM∗1</td></tr>
<tr><td rowspan="2">AVCHD</td><td>Dolby Digital</td><td>Dolby Digital</td></tr>
<tr><td>LPCM</td><td>2 ch Downmix LPCM</td></tr>
<tr><td rowspan="3">DVD-Video</td><td>Dolby Digital</td><td>Dolby Digital</td></tr>
<tr><td>DTS</td><td>DTS</td></tr>
<tr><td>LPCM, MPEG</td><td rowspan="2">2 ch Downmix LPCM</td></tr>
<tr><td>DVD-Audio</td><td>LPCM, PPCM</td></tr>
<tr><td rowspan="3">Super Audio CD</td><td>Multi area</td><td colspan="2" rowspan="2">Audio is not output</td></tr>
<tr><td>Stereo area</td></tr>
<tr><td>CD layer</td><td colspan="2">2 ch LPCM</td></tr>
<tr><td rowspan="2">DivX®</td><td>Dolby Digital</td><td>Dolby Digital</td><td>2 ch Downmix LPCM</td></tr>
<tr><td>MP3, MP2</td><td colspan="2" rowspan="3">2 ch LPCM</td></tr>
<tr><td colspan="2">CD</td></tr>
<tr><td colspan="2">MP3, WMA, AAC, LPCM</td></tr>
<tr><td colspan="2">DTS-CD</td><td>DTS</td><td>2 ch Downmix LPCM (DTS∗2)</td></tr>
</table>

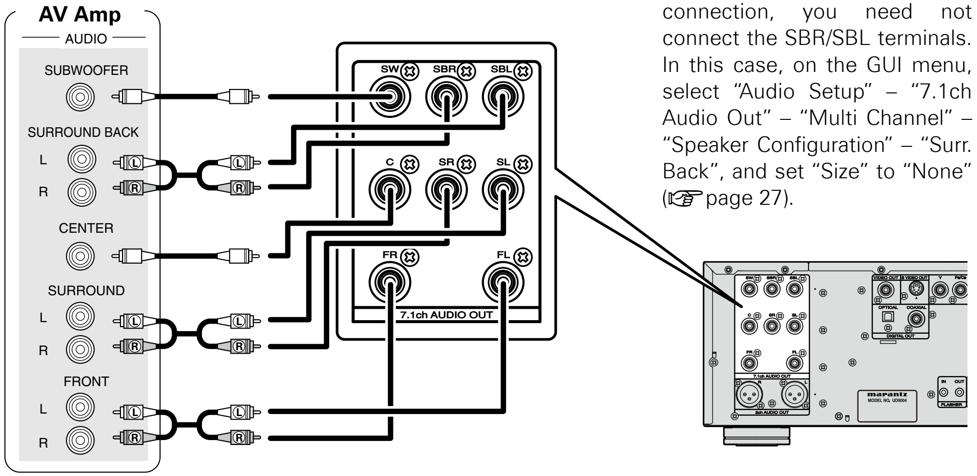
∗1 : Bitstream signals are output in accordance with the BD re-encode setting when “BD Audio Mode” is set to “Mix Audio Output” (☞page 33).
∗2 : When “HDMI Setup” – “Audio Setup” is set to “Auto” on the GUI menu and bit stream is output from HDMI , the DTS bit stream is output from the digital audio output (optical/coaxial) as well.

✎

For content with copyright protection, audio signal is down sampled to 48kHz 16bit and is output.

Connecting to a Device with an Analog Multi-channel Audio Input Terminal

Outputs multi-channel audio decoded by the UD9004.
If your audio system has an analog multi-channel audio input terminal, connect using audio cable (sold separately).

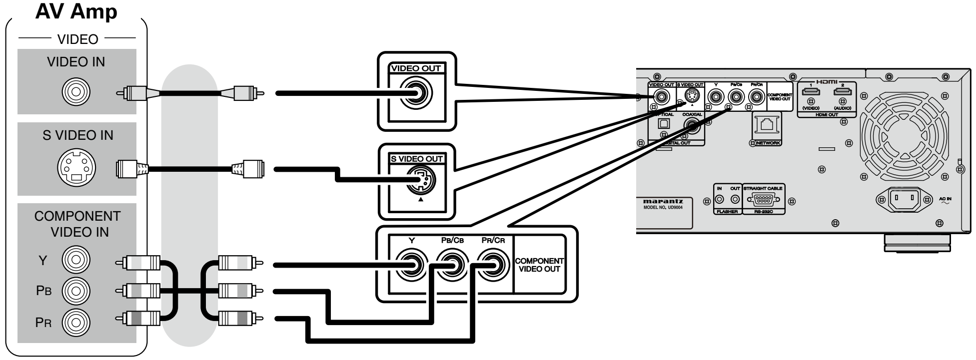


In the case of a 5.1-channel connection, you need not connect the SBR/SBL terminals. In this case, on the GUI menu, select “Audio Setup” – “7.1ch Audio Out” – “Multi Channel” – “Speaker Configuration” – “Surr. Back”, and set “Size” to “None” (☞page 27).

To output sound from a disc while maintaining the same sound quality as the disc sound, some settings of Audio Setup are disabled as default (☞page 25 ~ 27).
To enable the settings of Audio Setup, set Source Direct to “Off” (☞page 26).

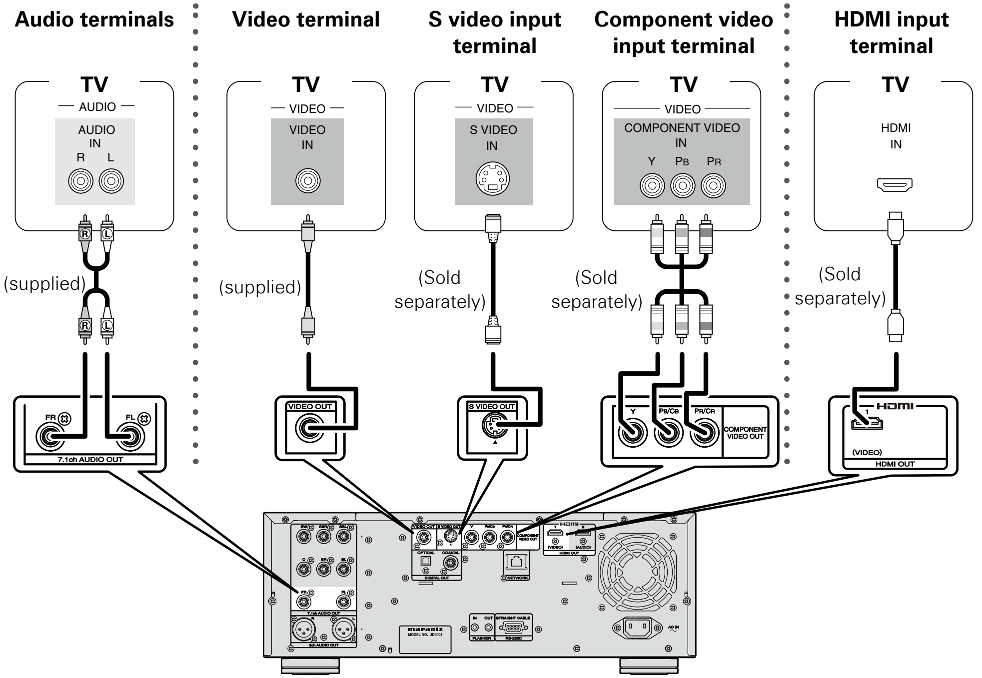
Connection to an AV Amp with No HDMI Video Input

Check the video terminals and make the connection to one of them.



2. Playing Back with a Direct Connection to a TV

Check the television's audio and video terminals and make the connection to one of them.



When outputting the UD9004's analog 2-channel audio to the television's 2-channel (stereo) audio input terminal, on the GUI menu, select "Audio Setup" – "7.1ch Audio Out", and set it to "2 Channel" (☞page 27).

NOTE

Do not connect the UD9004's video output via a VCR (Video Cassette Recorder). Some media contain copy prohibit signals, which will disturb the screen image.
When playing NTSC disc, UD9004's video output becomes NTSC signal format.
When playing PAL disc, UD9004's video output becomes PAL signal format.

❑ When connected to the television's component video input terminal

- The UD9004's component video output supports 480i/576i/480p/576p/720p/1080i output. Match the output to the corresponding resolution of the connected television by setting, on the GUI menu: "Video Setup" – "Component Resolution" (☞page 26). Images will not be projected normally if the television resolution and UD9004's output resolution do not match. Copyright protected DVD is output in 480i/576i or 480p/576p.

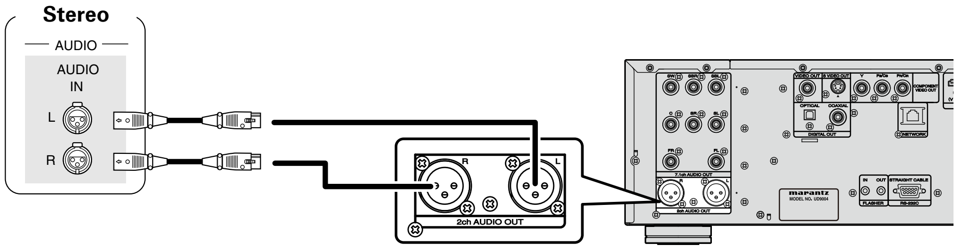
❑ When connected to the HDMI input terminal

Outputting both digital video and digital audio signals.
See "Required Settings for HDMI Connection" (☞page 15) for HDMI video output and audio output settings.

3. Playing Back 2-Channel Audio

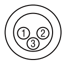
Connecting to a Device with Analog 2-channel Audio Input Terminal with Balanced Cable

Select “Audio Setup” – “XLR” (☞page 30) from the GUI menu beforehand to match the device to be connected.



NOTE

- Do not short circuit between each terminals. When making connections, check the input terminal layout of the device to be connected with the owner's manual.
- The default UD9004 balance model XLR input connectors pin alignment is as shown.

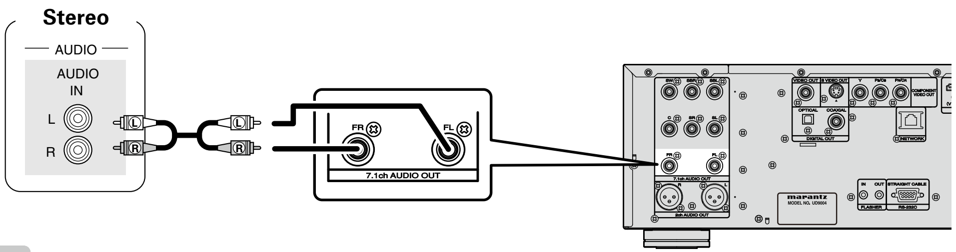


① GROUND ② HOT ③ COLD

For software recorded in multi-channel, analog signals that have been down-mixed into 2 channels are output.

Connecting to a Device with Analog 2-channel Audio Input Terminal with Stereo Pin Plug Cable

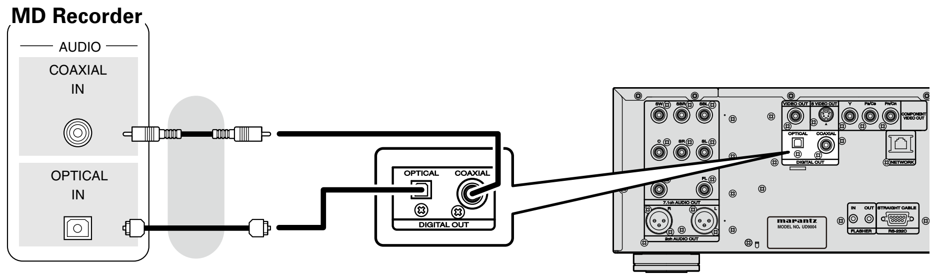
On the GUI menu, select “Audio Setup” – “7.1ch Audio Out”, and set it to “2 channel” (☞page 27).



For software recorded in multi-channel, analog signals that have been down-mixed into 2 channels are output.

4. Recording a CD

Connecting to a Digital Recording Device

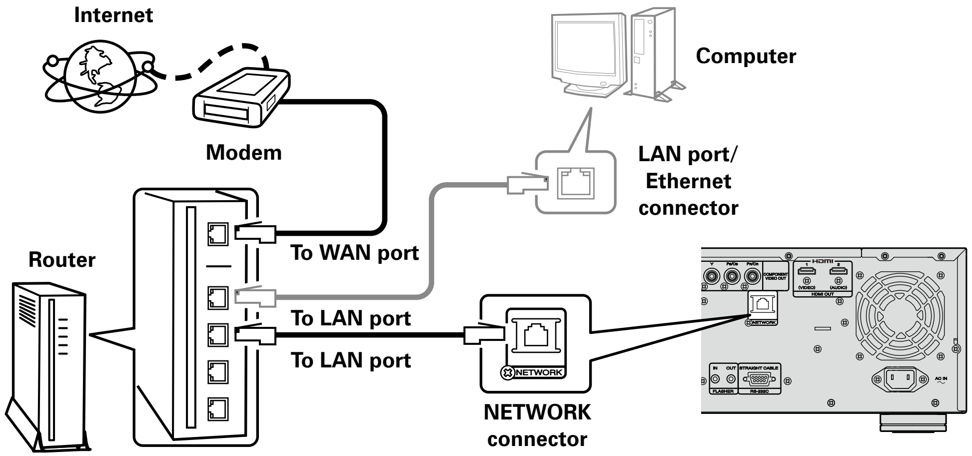


When converting multi-channel audio to 2-channel for output, on the GUI menu, select “Audio Setup” – “Digital Out”, and set it to “PCM Down Sampling” (☞page 29). If you play back DVD or other media with incorrect configuration, deafening noise occurs that may damage the speaker.

5. Updating to the UD9004's Latest Software Version

Connecting to the Network

- You can update by downloading the latest firmware from the Internet.
  For more information, on the GUI menu, select "Other Setup" – "Firmware Update" (☞page 33).
- See "Network Setup" (☞page 31) on the GUI menu for more information on network setting.



System Requirement

❑ Internet Connection by Broadband Circuit

❑ Modem

Device that connects to the broadband circuit and conducts communications on the Internet.
A type that is integrated with a router is also available.

❑ Router

When using the UD9004, we recommend a router with the following features.

- Built-in DHCP (Dynamic Host Configuration Protocol) server.
  Function that automatically assigns an IP address on the LAN.
- Built-in 100BASE-TX switch (built-in switching hub compatible with speeds upwards of 100 Mbps)

❑ Ethernet cable (CAT-5 or greater recommended)

- An Ethernet cable is not included with the UD9004.
- For Ethernet cable, we recommend you use shielded straight cable (normal type).
  If you use the flat type or a non-shielded cable, the noise may adversely affect other devices.

For Internet connection, use an ISP (Internet Service Provider). Ask your local dealer for details.

NOTE

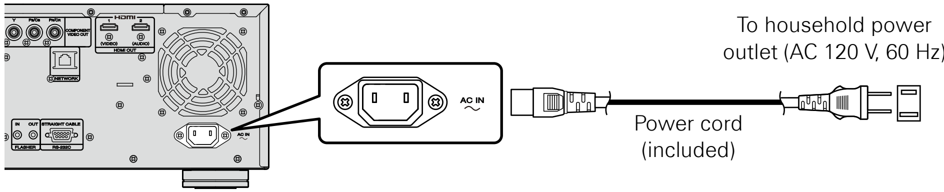
- It is necessary to subscribe to an ISP in order to connect to the Internet. If you already have a broadband connection, there is no need to subscribe anew.
- The router you can use varies with the ISP. For more information, contact your ISP or PC dealer.
- MARANTZ assumes no responsibility whatsoever for any communication errors or troubles resulting from customer's network environment or connected devices.

❑ Others

- The UD9004 can use the DHCP function to automatically set the network.
- With the type of circuit in which network setting is performed manually, when subscribed to a provider, conduct the setting in accordance with "Network Setup" on the GUI menu (☞page 31).
- If you connect the UD9004 to a network without a DHCP function, conduct IP address and other settings according to "Network Setup" on the GUI menu (☞page 31).
- The UD9004 does not support PPPoE. If you subscribe to a circuit that is set with PPPoE, a PPPoE-compatible router is required.
- When setting manually, check the setting contents with the network administrator.

Connecting the Power Cord

Connect the included power cord to the UD9004, and plug it into an AC outlet.



NOTE

- Be sure to insert the power plug firmly. Incomplete connection results in noise generation.

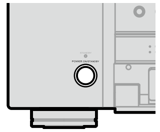
Once Connections are Completed

Turning the Power On

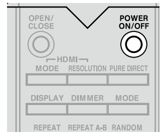
Press the unit's POWER ON/STANDBY button or the remote control's POWER ON/OFF button.

"LOADING" appears on the display, and disc information is read.

※ The "NO DISC" message is displayed when a disc is not loaded.



(UD9004)



(Remote control unit)

On the GUI menu, when "Other Setup" – "Auto Power Mode" – "On" (☞page 32), the following states are maintained for about 30 minutes, and then the power is turned automatically to standby.

- Disc not loaded
- Playback has stopped
- Stopped due to resume function

❑ When power is switched to standby

Either press **POWER ON/STANDBY** button on the unit, or press **POWER ON/OFF** button on the remote control.

The power indicator lights red.

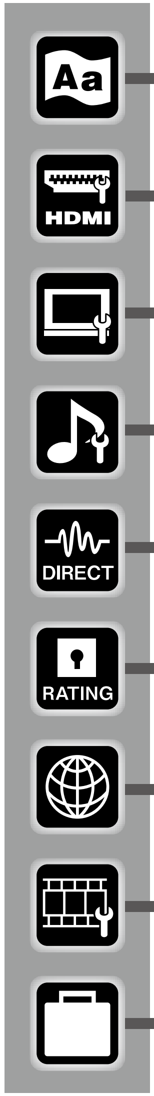
NOTE

During power standby, a slight amount of power is consumed. To totally cut off the power, remove the power cord from the power outlet.

GUI Menu Setup

Menu Map

Pressing SET UP button displays the GUI menu. From this menu, you can move to various setting screens.



Language Setup (☞page 25)

- ❑ Dialog
- ❑ Subtitle
- ❑ Disc Menus
- ❑ GUI Language

HDMI Setup (☞page 25, 26)

- ❑ Auto Format
- ❑ Color Space
- ❑ Deep Color
- ❑ Audio Setup
- ❑ SA-CD Audio Out
- ❑ HDMI Control

Video Setup (☞page 26)

- ❑ TV Aspect (Aspect ratio)
- ❑ Component Resolution
- ❑ Progressive Mode
- ❑ TV Active Area

Audio Setup (☞page 27 ~ 30)

- ❑ 7.1ch Audio Out
  - • Multi Channel
  - • 2 Channel
- ❑ Subwoofer Mode
- ❑ Source Direct
- ❑ Compression
- ❑ AFDM
- ❑ BD Effect Sound
- ❑ BD Re-Encoder
- ❑ Digital Out
- ❑ Downmix
- ❑ XLR

Pure Direct Setup (☞page 30)

- ❑ User Preset 1
- ❑ User Preset 2

Ratings (☞page 31)

- ❑ Password
- ❑ BD Rating Level
- ❑ DVD Rating Level
- ❑ Rating Country Code
- ❑ DivX Registration

Network Setup (☞page 31)

- ❑ DHCP
- ❑ Proxy
- ❑ IP Address
- ❑ MAC Address

Display Setup (☞page 32)

- ❑ Screen Saver
- ❑ Wallpaper
- ❑ Still Mode
- ❑ Slide Show Time
- ❑ Temporary Display
- ❑ Captions

Other Setup (☞page 32)

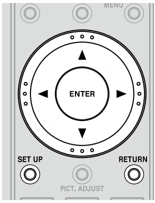
- ❑ Auto Power Mode
- ❑ Power Saving
- ❑ Remote Control Setting
- ❑ BD Data Utility
- ❑ Initialize
- ❑ Firmware Update
- ❑ Information

GUI Menu Operation

1 **Press SET UP button.**
The GUI menu is displayed on the TV screen.

2 **Press ▲, ▼, ▶ buttons to select the menu to be set or operated.**
※ To return to the previous item, press ◀ or **RETURN** button.

3 **Press ENTER button to enter the setting.**



❑ Exiting the GUI Menu

Press **SET UP** button while the GUI menu is displayed.
• The GUI menu display disappears.

NOTE

You must use the GUI menu to make settings or operate while a disc or SD Memory Card is not inserted. In cases in which the resume function is activated, you may not make correct settings.

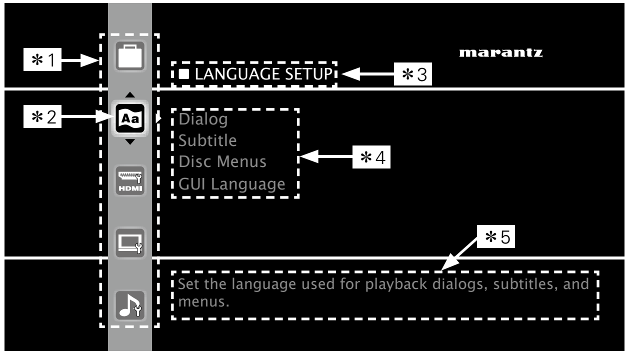
✎

Text colors of selected items of the GUI menu are as follows:
• White : These items can be selected.
• Gray : These items cannot be selected.

Examples of GUI Menu Screen Displays

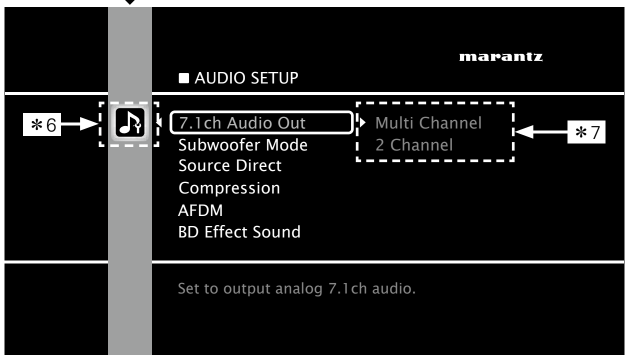
Typical examples are described below.

【Example 1】 Menu selection screen (Top menu)



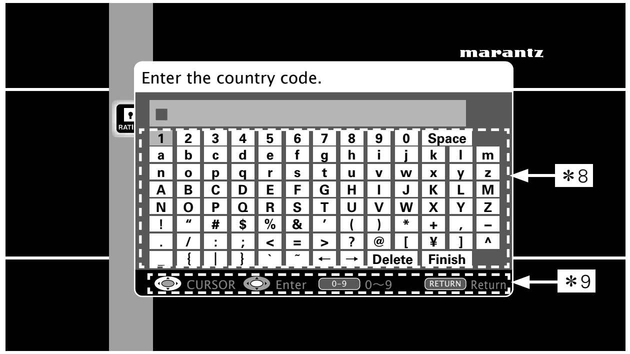
*1 : List GUI menu setup icons
*2 : Currently selected setup icon
*3 : Currently selected setup item
*4 : List of currently selected setup items
*5 : Guide text for the currently selected setup item

Press ▼ button to select " ♫ " and then press ▶ button.
(Or press ENTER button.)



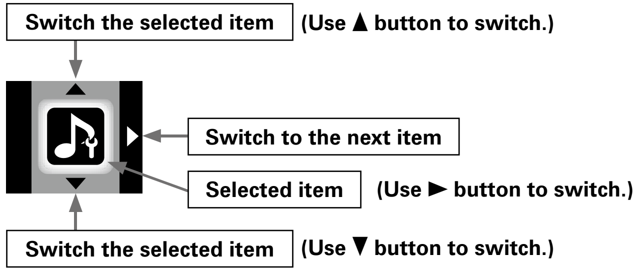
*6 : Selected setup icon
*7 : Options of the selected setup item

【Example 2】 Rating Country Code input screen (with virtual keyboard)

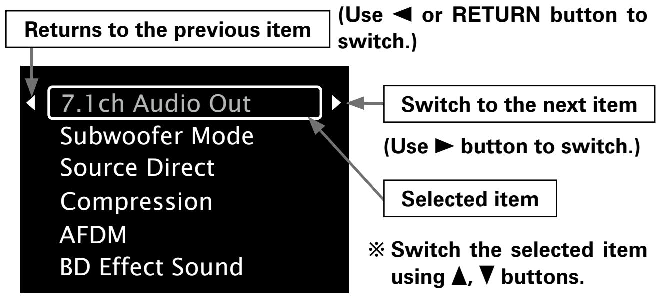


*8 : Virtual keyboard
*9 : Operation button guide

❑ Icon



❑ List



※ Switch the selected item using ▲, ▼ buttons.

Language Setup

Default settings are underlined.

Set the language used for playback dialogs, subtitles, and menus.

Setting items	Setting contents
Dialog Set the dialog used to play BDs or DVDs.	**Original** : Plays the dialog selected at the top in the language menu stored in the disc. **English/French/Spanish/German/Japanese/Italian/Swedish/Dutch/Russian/Chinese/Korean/Danish/Finnish/Norwegian/Icelandic/Hungarian/Romanian/Turkish/Greek/Irish/Portuguese/Polish/Czech/Slovak/Bulgarian** **Others :** Enter the language code.
Subtitle Set the subtitle language used to play BDs or DVDs.	**Off** : Do not display subtitles. **English/French/Spanish/German/Japanese/Italian/Swedish/Dutch/Russian/Chinese/Korean/Danish/Finnish/Norwegian/Icelandic/Hungarian/Romanian/Turkish/Greek/Irish/Portuguese/Polish/Czech/Slovak/Bulgarian** **Others :** Enter the language code.
Disc Menus Set the language used for BD or DVD menus.	**English/French/Spanish/German/Japanese/Italian/Swedish/Dutch/Russian/Chinese/Korean/Danish/Finnish/Norwegian/Icelandic/Hungarian/Romanian/Turkish/Greek/Irish/Portuguese/Polish/Czech/Slovak/Bulgarian** **Others :** Enter the language code.
GUI Language Set the GUI language.	**English/Français/Español/Deutsch/Italiano/Svenska/Nederlands/日本語**

NOTE

The setting may not be active depending on the disc.

If “Other” is selected for “Dialog”, “Subtitle” or “Disc Menus”, refer to “Language Code List” (☞page 51), use number buttons **0** ~ **9** button to input the language code, then press **ENTER** button to set.

HDMI Setup

Default settings are underlined.

Set the HDMI output signal or HDMI control function.

Setting items	Setting contents
Auto Format Set the content of HDMI video output resolution item “Auto” (☞page 15) with **HDMI RESOLUTION** button.	**Max Res.** : Output data using the maximum resolution that can be handled by the connected TV. When a TV is connected to both HDMI 1 and 2, maximum resolution corresponding with both is output. **Panel Res. :** Output data using the maximum resolution of the panel of the connected TV. When a TV is connected to both HDMI 1 and 2, resolution corresponding with both and that of the larger panel is output.
Color Space Set the video signal system to be output from HDMI.	**【HDMI 1】** or **【HDMI 2】 :** Set the video signal system to be output from HDMI1 or HDMI2. • **YCbCr** : Output by YCbCr video format. • **RGB Normal :** Output using the RGB video system (16 (black) to 235 (white)). • **RGB Enhanced :** Output using the RGB video system (0 (black) to 255 (white)).
Deep Color Expands the color depth (number of used colors) of the HDMI video signal, enabling playback with more natural colors and free of streaking.	**【HDMI 1】** or **【HDMI 2】 :** Set the HDMI1 or HDMI2 terminal to output Deep Color. • **Auto** : Deep Color is automatically output when the connected HDMI device supports Deep Color. • **Off :** Do not output Deep Color.
Audio Setup Set the audio signal system to be output from HDMI.	**【Auto】** : Automatically selects and outputs signals that can be input to the connected HDMI device. The bitstream signal takes priority. **【Multi LPCM BM On】 :** Decoded Linear PCM multi-channel signal is output by the UD9004. Speaker setting is enabled. (BM: Bass Management) For setting, on the GUI menu, refer to, “Audio Setup” – “7.1ch Audio Out” (☞page 27, 28). • **Speaker Configuration** : Set the speaker configuration used for playback. Automatically sets channel components and characteristics according to setting. • **Channel Level :** Set the volume of the test tone to be the same when it is output from each speaker. • **Distance** : Set the distance between the listening position and each speaker. To output sound from a disc while maintaining the same sound quality as the disc sound, some settings of Audio Setup are disabled as default (☞page 25 ~ 27). To enable the settings of Audio Setup, set Source Direct to “Off” (☞page 26). **【Multi LPCM BM Off】** : Decoded Linear PCM multi-channel signal is output by the UD9004. This setting is not made in speaker setting. (BM: Bass Management) **【2ch】 :** Output the downmixsed 2-channel LPCM signal. **【Mute】 :** Do not output audio from HDMI.

Setting items	Setting contents
SA-CD Audio Out Set to output stereo/multi area audio of Super Audio CD to the HDMI terminal.	**On** : Super Audio CD audio is output. **Off** : Super Audio CD audio is not output. ✐ The Super Audio CD audio signal is a 44.1 kHz/16-bit Linear PCM output.
HDMI Control Can operate the unit in conjunction with an HDMI control support device.	**[Control]** • **Off** : Disable the HDMI control function. • **HDMI1 On** : Link with the device connected to HDMI1. • **HDMI2 On** : Link with the device connected to HDMI2. **[Power Off Control]** • **On** : Turns the UD9004's power to standby through linkage to the TV. • **Off** : Does not turn the UD9004's power to standby through linkage to the TV. ✐ • For the HDMI control function to operate, it is necessary for the UD9004 or HDMI-compatible TV connected to the UD9004 to have an HDMI connection. • Refer to "HDMI Control Function" (☞page 49) for more information about the HDMI control function. • After the "HDMI Control" setting has been changed, always turn off the power to the connected equipment and then turn it back on.

Video Setup

Default settings are underlined.

Set the video output signal according to the connected TV.

Setting items	Setting contents
TV Aspect (Aspect ratio) Set the screen type and display mode of the TV.	**16:9 Squeeze Auto** : Output to a wide screen TV. For 4:3 video, display in the center of the screen without changing the aspect ratio. **WIDE (16:9)** : Output to a wide screen TV. **4:3 PS** : Output to a 4:3 TV. For wide video, trim the left and right side of the image and display in 4:3 aspect ratio. ✻1 **4:3 LB** : Output to a 4:3 TV. Display all of the wide video. ✻2
Component Resolution Set the component output resolution.	**480/576i**, **480/576P**, **720P**, **1080i**, **Source Direct** : Output video using its source resolution. Convert the 1080p video source to 1080i.
Progressive Mode Set an appropriate progressive conversion mode for the source video material.	**Auto** : Detect the type of video material and automatically switch the mode. Normally, this setting is used. **Video1** : Suitable for playing video material discs. **Video2** : Suitable for playing video material discs or 30-frame film material discs.
TV Active Area Sets the horizontal display range when the analog video output resolution is 480i/576i.	**Full** : Set when a home-use monitor is connected. **Normal** : This setting is used when video synchronization is disturbed on a professional-use monitor. ✐ This is not available for HDMI output.

✻1 : Depending on the video content, even though you set the 4:3 PS (Pan Scan), the content may be output in 4:3 LB (Letter Box).
✻2 : Only valid for content recorded in 480i/576i.

Audio Setup

Default settings are underlined.

Set the speaker or audio to be output.
Setting related to each channel setting and other audio in the case of outputting analog audio signals decoded by the UD9004.

Setting items	Setting contents
7.1ch Audio Out Makes the audio setting for output of analog 7.1-channel audio to a multi-channel amplifier. To set "7.1ch Audio Out", set "HDMI Setup" – "Audio Setup" on the GUI menu to "2ch" or "Mute" (☞page 25). **NOTE** • You cannot select "None" or "No" for "HDMI Setup" – Audio Setup" – "Multi LPCM BM On" – "Speaker Configuration" (☞page 25) on the GUI menu. • To output sound from a disc while maintaining the same sound quality as the disc sound, some settings of Audio Setup are disabled as default (☞page 25 ~ 27). To enable the settings of Audio Setup, set Source Direct to "Off" (☞page 26).	**Multi Channel** Set the speaker configuration, channel level and distance for multi-channel playback. **NOTE** When outputting multi-channel audio set to surround sound by the UD9004, to the analog input of an AV Amp, set so that the AV Amp outputs audio without modification. If the AV Amp conducts further surround processing, the appropriate audio will not be output. **2 Channel** Outputs multi-channel downmixed audio from the front speaker output terminals (FL/FR) of the 7.1-channel audio output terminals. Make this setting when outputting to a TV and 2-channel amplifier. **NOTE** The 7.1-channel audio output terminals output only FL/FR when you make this setting. ❑ **Speaker Configuration :** Set the speaker configuration. **[Front] :** Set the front speaker size. • **Large** : Use of a large speaker that can adequately play back low frequencies. • **Small :** Use of a small speaker that has inadequate playback capacity for low frequencies. **[Center] :** Set the presence and size of the center speaker. • **Large** : Use of a large speaker that can adequately play back low frequencies. • **Small :** Use of a small speaker that has inadequate playback capacity for low frequencies. • **None :** Select when a center speaker is not connected. **[Subwoofer] :** Set the presence of a subwoofer. • **Yes** : Use a subwoofer. • **No :** Select when a subwooofer is not connected.

Setting items	Setting contents
7.1ch Audio Out	**[Surround] :** Set the presence and size of the Surround speakers. • **Large** : Use of a large speaker that can adequately play back low frequencies. • **Small :** Use of a small speaker that has inadequate playback capacity for low frequencies. • **None :** Select when the surround speakers are not connected. **[Surr. Back] :** Set the presence, size and number of surround back speakers. • **Size :** Set the surround back speaker size. **Large** : Use of a large speaker that can adequately play back low frequencies. **Small :** Use of a small speaker that has inadequate playback capacity for low frequencies. **None :** Select when the surround back speakers are not connected. • **Number :** Set the number of surround back speakers. **1 spkr :** Use only one surround back speaker. Surround back audio is output from the surround back L terminal. **2 spkrs** : Use two surround back speakers.

Setting items	Setting contents
7.1ch Audio Out	**[Crossover Freq.] :** Set the upper limit of the low frequency signals output from the subwoofer. • **40Hz/60Hz/80Hz/90Hz/100Hz/110Hz/120Hz/150Hz/200Hz/250Hz :** Outputs at below set frequency, each speaker's bass signal output from the subwoofer. Set this according to the low frequency reproduction capabilities of the speakers you are using. • **Advanced :** Set the low frequency signals to be output from the signals of the respective speakers to the subwoofer. **Front, Center, Surround, Surr. Back** **40Hz/60Hz/80Hz/90Hz/100Hz/110Hz/120Hz/150Hz/200Hz/250Hz** **LFE / LFE+Main** **80Hz/90Hz/100Hz/110Hz/120Hz/150Hz/200Hz/250Hz** When, on the GUI menu, "Audio Setup" – "7.1ch Audio Out"– "Multi Channel" – "Speaker Configuration" – "Subwoofer" is set to "Yes" (☞page 27), you can select "LFE" or "LFE+Main". **NOTE** • Select "Large" or "Small" not according to the physical size of the speaker but according to the low frequency reproduction capabilities based on the frequency set at "Crossover Freq.". • On the GUI menu, if the "Audio Setup" – "7.1ch Audio Out"– "Multi Channel" – "Speaker Configuration" item setting is changed, other settings are automatically changed as well. **[Example]** If you set "Front" to "Small", "Subwoofer" is set to "Yes" and "Large" cannot be selected for "Center", "Surround" and "Surr. Back". • Audio signal (sampling frequency, number of channels) from the HDMI output terminal may be restricted by the specification of the HDMI audio that can be input by the device at the other side. **[Example]** If the HDMI audio specification of the device at the other side is the 5.1 channel, even when UD9004 plays back by the 7.1 channel, the 5.1 channel audio is automatically output. In that case, the analog audio output becomes the 5.1 channel output as well.

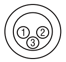
Setting items	Setting contents
7.1ch Audio Out	❑ **Channel Level :** Set the volume of the test tone to be the same when it is output from each speaker. **[Mode] :** Select a test tone output method. • **Auto :** Automatically switch the test tone output speaker. • **Manual :** Manually switch the test tone output speaker. **[Start] :** Begin outputting the test tone. **Front L / Center / Front R / Surround R /** **Surr. Back R / Surr. Back L / Surround L / Subwoofer** ※ When the test tone output stops, press **RETURN** button. **[SW +10dB] :** Increase the subwoofer output level by 10 dB. * • **Off :** Do not change the subwoofer output level. • **On :** Increase the subwoofer output level by +10 dB. **[Default] :** Reset all channel level settings to factory default. • **No :** Do not Reset. • **Yes :** Reset. ❑ **Distance :** Set the distance between the listening position and each speaker. **[Feet]** or **[Meters] :** Set the unit of distance. **[Step] :** Set the minimum variable width of the distance. **1ft, 0.1ft, 0.1m, 0.01m** **[Default] :** Reset all distance settings to factory default. **Front L / Front R / Center / Subwoofer / Surround L / Surround R / Surr. Back L / Surr. Back R :** Select the speaker you want to set, and set the distance. Set the value that is closest to the measured distance. **0~60ft or 0~18m** • Default settings : Front/Center/Subwoofer : 3.6 meters (12 feet) Surround/Surr. Back : 3.0 meters (10 feet) • Set the difference in the distance betweem the speakers to less than 6.0 meters (20 feet).
Subwoofer Mode Set the type of low frequency signal to be output from the subwoofer.	**LFE :** Add the low frequency signal of the channel for which the speaker size is set to "small" to the subwoofer signal and output it. **LFE+Main :** Add the low frequency signal of all channels to the subwoofer signal and output it.

* : "SW +10dB" cannot be set for "HDMI Setup" – "Audio Setup" – "Multi LPCM BM On" – "Channel Level" on the GUI menu.

Remote control operation buttons	SET UP	:Displaying the menu :Cancel the menu	▲▼◄►	:Moves the cursor (Up/Down/Left/Right)	ENTER	:Decision the setting	RETURN	:Return to previous menu

Setting items	Setting contents
Source Direct Disable the speaker and subwoofer settings and output the disc audio as is. **NOTE** Set to within the playback frequency band of the amplifier you are to use: "On" at "50 kHz" or "100 kHz". Setting outside the frequency band can result in damage to your amplifier and even fire.	**Off :** Enable the speaker and subwoofer settings. **On : 50kHz :** Output the disc contents as is. When playing Super Audio CD, output up to 50 kHz audio signals. **<u>On : 100kHz</u> :** Output the disc contents as is. When playing Super Audio CD, output up to 100 kHz audio signals with DSD format. • Setting "On: 50 kHz" or "On: 100 kHz" enables full-range playback on all channels recommended for DTS. (Note that this results in a 5 dB increase in subwoofer volume, and a 15 dB increase with Super Audio CD). This also allows you to play back the 6-channel source of DVD-Audio recorded on all channels with the full frequency range. In this case, make an analog connection according to disc operating manual. • When set to "On: 50 kHz" or "On: 100 kHz", all speaker sizes are set to "Large" and "Yes" is set for the subwoofer. • Even when set to "On: 50 kHz" or "On: 100 kHz", "Channel Level" and "Distance" settings are available.
Compression Compresses the dynamic range of Dolby TrueHD/ Dolby Digital/Dolby Digital Plus audio. At night or other times when you cannot play back at high volume, this compensates by reducing high level sounds and increasing low level sounds.	**<u>Auto</u> :** Automatically compress Dolby TrueHD audio dynamic range. The sound is not compressed when playing signals other than Dolby TrueHD signals. **Off :** Dynamic Range compression is not applied. **Low :** Set minimum dynamic range compression. **Middle :** Set middle dynamic range compression. **High :** Set maximum dynamic range compression.
AFDM Automatically set the surround mode by detecting the surround mode identification signal recorded in the disc.	**<u>On</u> :** Automatically set surround mode when the ID signal is included. **Off :** Do not set surround mode even when the ID signal is included. **MTRX :** Create a surround audio signal by matrix processing, regardless of the presence of an ID signal. An EX flag may not be included for Dolby Digital EX sources. Even with "AFDM" set to "On", set to "MTRX" in case the playback mode does not automatically switch. **NOTE** • This setting is valid when "Audio Setup" – "7.1ch Audio Out" on the GUI menu is set to "Multi Channel" (☞page 27) and when "HDMI Setup" – "Audio Setup" on the GUI menu is set to "Multi LPCM BM On" (☞page 25). • This setting is invalid when "Audio Setup" – "Source Direct" on the GUI menu is set to "On" (☞page 29). • This function is invalid for the DTS-CD source.

Setting items	Setting contents
BD Effect Sound Sets for a click sound and other outputs during BD popup menu operations.	**<u>On</u> :** Outputs BD effect sound. **Off :** Does not output BD effect sound.
BD Re-Encoder Sets the format during output of the BD's Mix Audio signal from the digital output terminal.	**<u>Auto</u> :** Outputs primary audio (main audio) in the same type of audio format. Dolby Digital/Dolby Digital Plus/Dolby TrueHD are output as Dolby Digital, DTS/DTS-HD are output as DTS and Linear PCM is output as Linear PCM. **Dolby Digital :** Outputs to the digital audio output terminal (optical/coaxial) with Dolby Digital. **DTS :** Outputs to the digital audio output terminal (optical/coaxial) with DTS. Valid when "BD Audio Mode" is set to "Mix Audio Output" (☞page 33).
Digital Out Set the audio signal of digital audio output. For more information on each audio signal, refer to "Audio Signal from the Digital Audio Output (Optical/Coaxial) Terminal" (☞page 17).	**<u>Bitstream</u> :** Outputs a bitstream signal. Converts Dolby TrueHD, Dolby Digital Plus to Dolby Digital, and DTS-HD to DTS for output. **PCM :** Output the downmixed audio signal to 2ch LPCM. **PCM Down Sampling :** Convert sampling frequency audio greater than 48 kHz to a 48 kHz 2ch LPCM audio output signal. • When outputting CD, etc. to a digital recording device such as the CD recorder, convert to PCM or PCM down sampling. • When a disc with recorded Linear PCM or PPCM (Packed PCM) is played back, this outputs Linear PCM irrespective of the setting.
Downmix Set the method used to convert a multi-channel audio signal to a 2-channel signal.	**<u>Lt/Rt</u> :** Signals are converted to Dolby Surround compatible 2-channel audio signals for output. This setting is valid for DTS-HD, DTS Digital Surround, Dolby Digital Plus and Dolby Digital audio signals. (If the connected AV Amp is Dolby Pro Logic compatible, AV Amp plays back using surround audio.) **Stereo :** Outputs by converting to the 2ch (stereo) audio. **NOTE** In order to enable the "Lt/Rt" setting when playing back BD, set "BD Audio Mode" to "HD Audio Output" (☞page 33).

Setting items	Setting contents
XLR Set the signal to be output from the XLR terminal.	**[Terminal Polarity] :** Set the polarity of the XLR terminal. • **Normal :** Normal polarity. • **Inversion :** Reverse the polarity. **[Gain Up] :** Can increase output gain when the input sensitivity of a device connected via XLR is low. • **Off :** Outputs at standard gain from the XLR terminal. • **On :** Increase the output gain of the XLR terminal. Set when the input sensitivity of the connected device is low. The default UD9004 balance model XLR audio connectors pin alignment is as shown.  ① GROUND ② HOT ③ COLD

Pure Direct Setup

Default settings are underlined.

Makes settings regarding digital audio and video output modes during Pure Direct mode, as well as display messages. Two types of setting can be registered.

Setting items	Setting contents
User Preset 1/ **User Preset 2** This sets the operating mode for "User Preset 1" or "User Preset 2" selected by **PURE DIRECT** button. Setting each of these items to "Off" enables output of high quality analog signals free of interference from the associated circuits.	**[Digital Out] :** Set whether to output signals to the digital audio output terminal. • **On :** Enable digital audio output. • **Off :** Disable digital audio output. **[Video Out] :** Set option of video output. • **On :** Enable video output. • **Off :** Disable video output. This setting also disables audio output from the HDMI terminal. **[Display] :** Set option for front panel display. • **On :** Turn on display. • **Off :** Turn off display. For more information, see "Playing Back High-quality Audio (Pure Direct Function)" (☞page 40).

Remote control operation buttons				
	SET UP : Displaying the menu / Cancel the menu	**▲▼◄►** : Moves the cursor (Up/Down/Left/Right)	**ENTER** :Decision the setting	**RETURN** :Return to previous menu

Ratings

Default settings are underlined.

Set BD or DVD parental lock or display DivX® registration codes.

Setting items	Setting contents
Password Sets the password for changing the parental control level and parental control country code of BD and DVD.	**Change :** Change the password.Use **0** ~ **9** button to enter a password and then press **ENTER** button to finalize it. The default setting is "0000".
BD Rating Level Set the parental level for playing BD.	**Level 0 ~ 254 :** Set the age allowed to play back media. Restricts playback of discs with relevant parental control. **No Limit :** Do not restrict playing of BDs.
DVD Rating Level Set the parental level for playing DVD.	**Level1 ~ 8 :** Set the parental level for playing DVD. **Lock All :** Restrict playing of all DVDs. **No Limit :** Do not restrict playing of DVDs.
Rating Country Code Sets the standard country parental control. Apply the parental level of the set country.	**Argentina / Australia / Austria / Belgium / Brazil / Canada / Chile / China/ Denmark / Finland / France / Germany / Hong Kong / India / Indonesia / Italy / Japan / Korea, Republic of / Malaysia / Mexico / Netherlands /New Zealand / Norway / Pakistan / Philippines / Portugal / Russian Federation / Singapore / Spain / Switzerland / Sweden / Taiwan / Thailand / United Kingdom / United States / Colombia / Greece / Ireland / Luxembourg / Poland** **Others :** Inputs the country code. Refer to "Country Code List" (☞page 52) and, with the virtual keyboard, use ▲, ▼, ◄, ► and **ENTER** buttons to input the country code.
DivX Registration Display the DivX® registration code.	**Show Code :** Display the DivX® registration code

Network Setup

Default settings are underlined.

Set to connect to the Internet.
To obtain update support for your UD9004, you can download the latest firmware from our website.
Make a network connect beforehand according to "Connecting to the Network" (☞page 21).

Setting items	Setting contents
DHCP Set how to perform network configuration, automatically or manually. ✎ Since the factory default setting is "On", you do not need to set items such as the IP address if the DHCP server of the broadband router is set to "Enable". Configure a proxy server if necessary.	**[On] :** Automatically configure the network by the DHCP function. **[Off] :** When connecting to a network, which does not have the DHCP function, manually configure the following network settings. For the details of the settings, confirm with the provider or network administrator. Use **0** ~ **9** button to enter a value and then press **ENTER** button to finalize it. • **IP Address** : Manually set the IP address of the UD9004. • **Subnet Mask** : If the xDSL modem or terminal adaptor is directly connected to the UD9004, enter the subnet mask notified by the provider usually in a document. Usually, "255.255.255.0" is set. • **Default Gateway** : If the device is connected to a gateway (router), enter its IP address. • **Primary DNS** : Enter the primary DNS. • **Secondary DNS** : Enter the secondary DNS.
Proxy Set to connect to the Internet via a proxy server.	**[Off]** Do not use a proxy server. **[On (Address)]** Set to connect to the Internet via a proxy server. Use the address to specify the proxy server. Use **0** ~ **9** button to enter the address and then press **ENTER** button to finalize it. • **Port :** Use **0** ~ **9** button to enter a port number and then press **ENTER** button to finalize it. **[On (Name)]** Set to connect to the Internet via a proxy server. Specify the proxy server using the domain name. Input the domain name with the virtual keyboard, using ▲, ▼, ◄, ► and **ENTER** buttons. • **Port :** Use **0** ~ **9** button to enter a port number and then press **ENTER** button to finalize it.
IP Address	UD9004's IP address is displayed. If the IP address cannot be obtained or is not set, "···" is displayed. In that case, check that the connection and network configuration is correct.
MAC Address	Displays the MAC address of the UD9004.

Remote control operation buttons	**SET UP** :Displaying the menu / Cancel the menu	▲▼◄► :Moves the cursor (Up/Down/Left/Right)	**ENTER** :Decision the setting	**RETURN** :Return to previous menu

Display Setup

Default settings are underlined.

Set display-related items.

Setting items	Setting contents
Screen Saver Set the screensaver.	**Off :** Do not use the screensaver. **<u>On</u> :** The screensaver function activates when stop or pause status continues for about three minutes.
Wallpaper Set to display the background while playback is stopping.	**<u>Picture</u> :** Displays the MARANTZ logo. **Black :** Set the background to black. **Gray :** Set the background to gray. **Blue :** Set the background to blue.
Still Mode Set image quality during pause.	**<u>Automatic</u> :** Display automatically using "Field" or "Frame" per the still image information. **Field :** Set when there is a blurred image when "Automatic" image display is set. **Frame :** Set to display non moving images in high resolution.
Slide Show Time Sets the display time of JPEG files.	**3 ~ <u>5</u> ~ 100sec :** This sets the display time per frame of a JPEG file during slideshow playback.
Temporary Display When the display is set to "Off" by the Dimmer Control (☞page 49) or Pure Direct Function (☞page 40), this sets it to temporarily display operations received.	**Off :** Do not temporarily display operations. **<u>On</u> :** Temporarily display operations.
Captions This setting output a subtitles signal to a closed caption decoder (sold separately).	**<u>Off</u> :** Do not output the closed caption (subtitle) signal. **On :** Output the closed caption (subtitle) signal.

Other Setup

Default settings are underlined.

Set other items.

Setting items	Setting contents
Auto Power Mode This setting automatically sets the power to standby.	**<u>Off</u> :** Do not use auto power mode. **On :** This setting automatically sets the power to standby if any of the following states continues for approximately 30 minutes. • Disc not loaded • Playback has stopped • Stopped due to resume function
Power Saving Set power saving mode during standby.	**<u>Power Saving Standby</u> :** This is the lowest power consumption mode. During standby, operations are not accepted via HDMI control or RS-232C. **Normal Standby :** This is the low power consumption mode. During standby, operations are accepted via RS-232C but not accepted by HDMI control. **HDMI Control Mode :** Setting for turning the power on using an external device's HDMI control function or by operation via RS-232C. Slightly higher power consumption. **Quick Start Mode :** Start up time is faster but power consumption during standby is higher.
Remote Control Setting (Main unit side) Set the remote control.	**[Remote ID]** Switches the UD9004's remote control ID code when other MARANTZ BD Players are in the vicinity. • **<u>BD 1</u> :** Set the code setting on the remote control to "1" (☞page 7 "Remote Control Setting (Remote Control Side)"). • **BD 2 :** Set the code setting on the remote control to "2" (☞page 7 "Remote Control Setting (Remote Control Side)").
BD Data Utility Erases data on SD Memory Card, and initializes cards.	**BD Data Erase :** Erases both internal memory and SD Memory Card storage. **Initialize SD Card :** Initialize the SD card to be used for the Bonus View function. **NOTE** • Insert or remove a SD Memory Card while the power is in standby. If you insert a SD Memory Card while the power is ON, the SD Memory Card may not be read. • The SD card used for the Bonus View function must have a capacity of 1GB or greater. Also the SD card must be initialized on the UD9004. • This operation will delete all the data. Do not perform this operation when an SD card containing MP3 or JPEG data is inserted.

Remote control operation buttons				
SET UP : Displaying the menu / Cancel the menu	**▲▼◄►** : Moves the cursor (Up/Down/Left/Right)	**ENTER** : Decision the setting	**RETURN** : Return to previous menu	

Setting items	Setting contents
Initialize All settings including audio mode and picture quality are default settings.	**Cancel :** Do not initialize. **OK :** Execute initialization.
Firmware Update Update the firmware of the unit via the Internet.	**Check for Update :** Check if the latest firmware exists. You can also check approximately how long it will take to complete an update. **Start :** Starts firmware update. When updating starts, the power indicator lights red and the GUI screen is shut down. During update, a rough remaining time is indicated on the display. When updating is complete the power indicator lights green and normal status is resumed.
Information Displays the license for the IPA font used by this product.	**【Font License】** **Japanese (Original) :** Displays in Japanese. The font used in this product's GUI menu screen conforms to IPA font specifications. See the following URL for the IPA font license agreement. http://ipafont.ipa.go.jp/enduser_license.html

Cautions on "Firmware Update"

- In order to use these functions, you must have the correct system requirements and settings for a broadband Internet connection (☞page 21, 31).
- Do not turn off the power until updating is completed.
- Information regarding the "Firmware Update" function will be announced on the MARANTZ web site each time related plans are defined.
- Even with a broadband connection to the Internet, approximately 1 hour is required for the updating procedure to be completed.
  Once updating starts, normal operations on the UD9004 cannot be performed until updating is completed. Also, setting items of the GUI menu of UD9004 or setting items of the image adjustment may be initialized.

Various Settings

You can set the audio mode and change playback files.
You can set various modes during playback. The setting menu is displayed at the top of the screen.

1 Press MODE button.
Displays the currently settable menu.

Vertical Stretch	Off
BD Audio Mode	Mix Audio Output
File filter	All

※ The display content changes depending on the media being played back.



2 Select the setting item using ▲, ▼ buttons, and then press ENTER or ▶ button.

3 Use ▲, ▼ buttons to select a setting and use ENTER button to change the setting.

Setting the Audio Mode

Default settings are underlined.

Setting items	Setting contents
BD Audio Mode Switch BD audio playback mode.	**HD Audio Output :** Can view by outputting high quality signals such as Dolby TrueHD, Dolby Digital Plus, or DTS-HD as its high sound quality bitstream. Cannot listen to interactive or secondary audio. **Mix Audio Output :** Outputs a mix of primary audio/interactive audio/secondary audio. ✎ In the case of Dolby TrueHD, Dolby Digital Plus and DTS-HD audio playback, set to "HD Audio Output". **NOTE** When "Mix Audio Output" is set and DTS-HD audio signals are played, only the DTS digital surround stream of the DTS-HD audio stream is decoded and output.
Surround Mode Converts a 2-channel source, etc. to output multi-channel surround audio.	**Direct :** Do not apply surround processing and output audio as is. **DOLBY PLIIx (or PLII) :** Apply DOLBY PLIIx (or PLII) surround processing and output the signal. **DTS NEO:6 :** Apply DTS NEO:6 surround processing and output the signal. **NOTE** • This setting is valid when "Audio Setup" – "7.1ch Audio Out" on the GUI menu is set to "Multi Channel" and when "HDMI Setup" – "Audio Setup" on the GUI menu is set to "Multi LPCM BM On" (☞page 25). • This setting is invalid when "Audio Setup" – "Source Direct" on the GUI menu is set to "On" (☞page 29).

Setting items	Setting contents
Surround Parameters Sets the parameters of surround mode. The parameters which can be adjusted vary with each surround mode.	**【PLⅡx Mode】:** Sets to Dolby Pro Logic Ⅱx mode. **【PLⅡ Mode】:** Sets to Dolby Pro Logic Ⅱ mode. • **<u>Cinema</u> :** Appropriate setting for movie sources. • **Music :** Appropriate setting for music sources. **Dimension** (Setting value : **0 ~ <u>3</u> ~ 6**) **:** Shift the center of the acoustic field forwards or backwards to adjust the playback balance. **Center Width** (Setting value : **0 ~ <u>3</u> ~ 7**) **:** Shift the center channel audio left or right to widen the forward acoustic field image. **Panorama** (Setting : **<u>Off</u>/On**) **:** Expand the acoustic field of the front left and right channel to the surround channel to widen the forward acaustic field image. • **Game :** Appropriate mode for gaming. • **Pro Logic :** Pro Logic playback mode. **【DTS NEO:6 Mode】:** Sets to DTS NEO: 6 mode. • **<u>Cinema</u> :** Appropriate setting for movie sources. • **Music :** Appropriate setting for music sources. **Center Image** (Setting value : **0 ~ <u>0.3</u> ~ 1.0**) **:** Shift the center channel audio left or right to widen the forward acoustic field image.
Restorer Compensates for the heaviness of bass and treble in compressed audio sources, to produce a sound that is closer to the state before compression.	**<u>Off</u> :** The "Restorer" is not used. **Mode1 (Restorer64) :** Corrects the treble for compressed audio sources with extreme lack of treble. **Mode2 (Restorer96) :** Optimally corrects treble and bass for compressed audio sources. **Mode3 (RestorerHQ) :** Corrects the bass for compressed audio sources with sufficient treble. **NOTE** • Effective for compressed audio source of MP3, WMA, AAC, Dolby Digital, DTS, and MPEG. • This setting is invalid when "Audio Setup" – "Source Direct" on the GUI menu is set to "On" (☞page 29).

Changing the Playback File Display

<u>Default settings are underlined.</u>

Setting items	Setting contents
File filter Selects the file format you want to play back from among the files mixed on a disc.	**<u>All</u> :** Plays back MP3/WMA/AAC/LPCM/JPEG/DivX® files. **Audio :** Plays back MP3/WMA/AAC/LPCM files. **Picture :** Plays back JPEG files. **Video :** Plays back DivX® files. **Audio & Picture :** Plays back MP3/WMA/AAC/LPCM/JPEG files. ✎ This operation is effective only when playback is stopped.

Making Other Settings

<u>Default settings are underlined.</u>

Setting items	Setting contents
Secondary Video (PIP)	**<u>Off</u> :** Does not display Secondary Video(Picture-In-picture). **1/X∗ :** Displays the first Secondary Video. **2/X∗ :** Displays the second Secondary Video. **X/X∗ :** Displays the X th Secondary Video. **∗ :** "X" is the number of Secondary Videos recorded and differs depending on the disc ("Playing Bonus View" ☞page 38)
Audio/Video Sync Correct displaced video-audio playback timing.	**<u>HDMI</u> :** Synchronizes audio output to HDMI output video. **Analog Video Out :** Synchronizes audio output to analog video output.
Audio Delay Adjust While viewing video, manually adjust the time to delay audio output.	**<u>0</u> ~ 200msec :** Use this to adjust the audio output delay time manually.
Vertical Stretch Extends cinemascope size video in the vertical direction.	**<u>Off</u> :** Displays the source video signal without modification. This should normally be set to "Off". **On :** Set when viewing cinemascope size video with a combination of projector and anamorphic lens. Extends the image in the vertical direction so that the top and bottom black portions disappear.

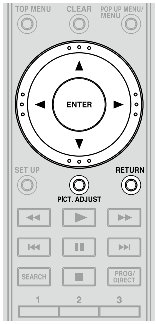
Adjusting the Picture Quality (Picture Control)

You can adjust the picture quality to your liking.
You can store up to a maximum of 5 values in memory.

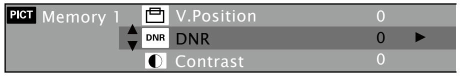
1 **Press PICT. ADJUST button.**
The currently set status is displayed.

2 **Select the memory number you want ("Memory 1" ~ "Memory 5") with ▲, ▼ buttons, and then press ENTER button.**





3 **Select the item you want to change with ▲, ▼ buttons.**

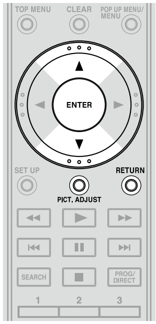


4 **Change the setting with ◄, ► buttons.**

※ Refer to the table on the right regarding contents of items which can be set.

❑ When Finishing Picture Adjustment

Press **PICT. ADJUST** button during picture adjustment.



❑ When Outputting Standard Picture Quality without Using Picture Adjustment

Press **RETURN** and ▲, ▼ buttons to select "Standard" and then press **ENTER** button.

✎

The picture adjustment set values are retained in memory even after the power is turned off.

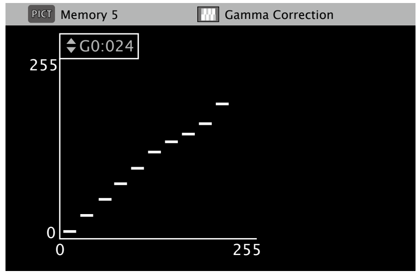
Setting items	Setting contents	Default
DNR Reduce noise in the entire picture.	**0 ~ +3**	**0**
Contrast Adjust picture contrast.	**–6 ~ +6**	**0**
Brightness Adjust picture brightness.	**0 ~ +12**	**0**
Enhancer Strengthens the contours of the picture.	**0 ~ +11**	**0**
Gamma Correction Adjust video brightness in detail.	**G0 ~ 9**	**G0 = 24 / G1 = 32** **G2 = 48 / G3 = 64** **G4 = 80 / G5 = 96** **G6 = 128 / G7 = 160** **G8 = 192 / G9 = 224**
Sharpness (medium range) ＊1 Adjust picture sharpness for the medium frequency range.	**–6 ~ +6**	**0**
Sharpness (high range) Adjust picture sharpness for the higher frequency range.	**–6 ~ +6**	**0**
Hue (color tone) Adjust the green and red color balance.	**–6 ~ +6**	**0**
White Level Adjust the white level.	**–5 ~ +5**	**0**
Black Level Adjust the black level.	**–5 ~ +5**	**0**
Chroma Level Adjust the color density.	**–6 ~ +6**	**0**
Setup Level＊2 Adjust the black areas of the image.	**0 IRE** **7.5 IRE**	**7.5 IRE**
H.Position Adjust the left/right position.	**–7 ~ +7**	**0**
V.Position Adjust the top/bottom position.	**–7 ~ +7**	**0**

＊1 : This is not available for HDMI output.
＊2 : Effective only for the 480i video signal from the video output terminal, S video output terminal, and component video output terminal.

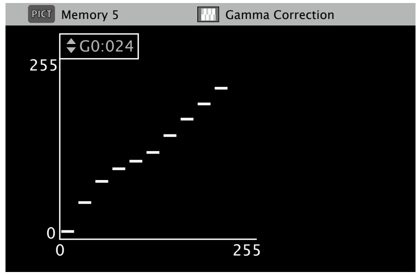
About Gamma Correction

When you select "Gamma Correction", and then press **ENTER** button, you can change the setting with ▲, ▼, ◄, ► buttons.

In the example of the graph below, the horizontal axis shows the brightness level of the pictured recorded on the disc. The vertical axis shows the brightness of the picture output by the UD9004.



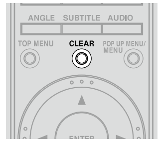
- On adjusting the brightness on the output side of bright parts on the disc side, the normally hard to see bright parts become clearly discernible images.



- On adjusting the brightness on the output side of dark parts on the disc side, the normally hard to see dark parts become clearly discernible images.

❑ Resuming Initial Values after Gamma Correction

Press **CLEAR** button while a graph is displayed.



Playback

Disc playback

- ❑ **Playing BD and DVD-Video (☞page 37, 38)**
- ❑ **Playing Back Super Audio CD (☞page 39)**
- ❑ **CD Playback (☞page 39)**
- ❑ **DVD-Audio Playback (☞page 39, 40)**
- ❑ **Playing Back High-Quality Audio (☞page 40)**

File playback

- ❑ **File Playback (☞page 40 ~ 42)**

Operations Enabled During Playback (☞page 43)

NOTE

- The " ⃠ " (prohibited mark) may appear on the top right of the TV screen during an operation. This means that the operation being conducted is prohibited.
- Depending on the disc, certain operations may not be as described in this manual. Check each disc owner's manual for more information.
- During playback of a 2-layered disc, pictures may stop momentarily. This happens when the 1st layer switches to the 2nd layer. This is not a malfunction.

Introduction

Before Playing a Disc

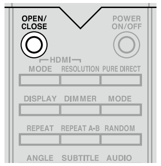
1 Turn on the power of the amplifier and TV.
Set the TV and amplifier function to UD9004 input.

2 Turn the UD9004 power on.

※ When playing back a bonus view, before turning on the power of the UD9004, insert a SD Memory Card that has at least 1GB and has been initialized by UD9004.

3 Press the SD/DISC button on the main unit to set the playback media mode to "DISC MODE".

4 Insert a disc.



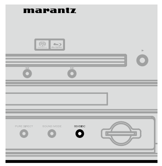
- Press **OPEN/CLOSE** button to open/close the disc tray.
- Insert the disc with the side you want to play facing down.

Before Playing a SD Memory Card

1 Turn on the power of the amplifier and TV.
Set the TV and amplifier function to UD9004 input.

2 Insert a SD Memory Card.
Open the door at the right side of the unit and insert the SD Memory Card in the direction indicated by the arrow with the label side up (☞page 6, 8).

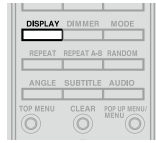
3 Turn the UD9004 power on.



4 Press the SD/DISC button on the main unit to set the playback media mode to "SD CARD MODE".
The SD indicator on the front panel lights.

The playback media mode setting remains in the memory, even when the power is set to standby.

About Playback Information

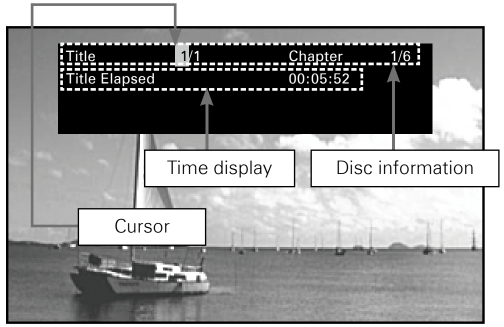


Displayed playback information changes between the information bar and media player screen each time DISPLAY button is pressed.
To erase display, press DISPLAY button until it goes away.

※ Displayed content differs depending on the media being played back.
Also, the information displayed during playback and stop differs.

Information Bar Display

BD | DVD-A | DVD-V | DVD | DivX



※ Displayed inside the frame at the top of the screen. (See the next page.)

❑ Disc Information Display

- **Title** — Title being played/total number of titles
- **Chapter** — Chapter being played/total number of chapters
- **Group** — Group being played/total number of groups
- **Track** — Track being played/total number of tracks

❑ Time Display

- **Title Elapsed**
- **Title Remain**
- **Chapter Elapsed**
- **Chapter Remain**
- **Group Elapsed**
- **Group Remain**
- **Track Elapsed**
- **Track Remain**

❑ HDMI Output Signal Display

HDMI1/HDMI2

- **Video Info** — Video output signal format/resolution
- **Audio Info** — Audio format being output
- **Max Channel** — Number of audio channels that the connected device can receive

Search Using Information Bar

In the orange color cursor area, when you enter the number that you wish to search, that location is searched. There are 4 search modes, “Title search”, “Chapter search”, “Group search” and “Track search”.

1 **Use ▲, ▼, ◄, ► buttons to move the cursor to the item that you wish to search.**

2 **Use 0 ~ 9 and +10 buttons to enter a value.**

3 **Press ENTER button.**
Search is executed and playback begins.

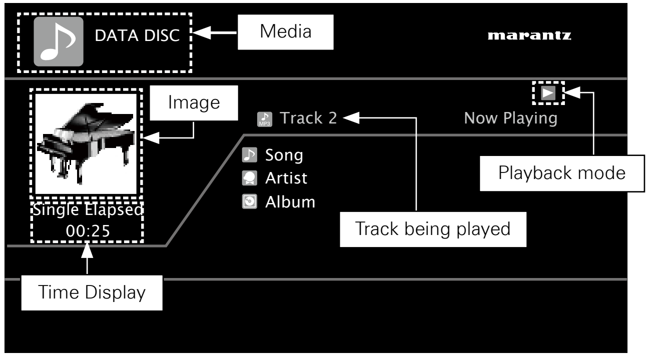


※ If the input number information is not on the disc, the current playback display reappears.

▲, ▼, ◄, ► .... Select
ENTER .... Decision
0 ~ **9**, **+10** .... Number entry

Media Player Display

SA-CD | CD | MP3 | WMA | AAC | LPCM



❑ Disc Information Display

SA-CD | MP3 | WMA | AAC

- Title
- Artist name
- Album title

About the time display and HDMI output signal display, see “Information Bar Display” (☞page 36).

Playing BD and DVD-Video

BD | DVD-V

1 **Playback preparation (“Before Playing a Disc” ☞page 36).**

2 **Make the various settings for playback on the disc menu.**

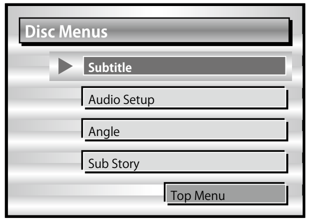


▲, ▼, ◄, ► .... Select
ENTER .... Playback

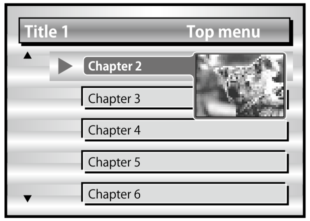
- You can make the following settings on the disc menu. (Settable items vary depending on the disc.)
  - Subtitle language
  - Audio language
  - Audio format etc.
- During DVD-Video playback, press **TOP MENU** or **POP UP MENU/MENU** button to display the menu.
  If the menu continues, press ▲, ▼, ◄, ► buttons to get to the next part.

3 **Select the playback title or chapter from the top menu for playback.**

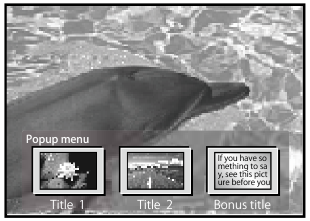
▲, ▼, ◄, ► .... Select
ENTER .... Playback
0 ~ **9**, **+10** .... Playback



【Example】 Disc menu



【Example】 Top menu



【Example】 Popup menu

With BD, depending on the disc, you can select title and chapter from the popup menu.

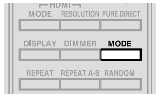
❑ Playing BD-Video Compatible with Bonus View

- With a disc that is compatible with bonus view (picture-in-picture), besides the main video (primary video) stored on the disc, you can play back the video director's commentary and simultaneously ongoing sub-story, as well as sub-video such as alternative camera angle (secondary video).
- Some BD discs use SD cards as the recording memory for Bonus View playback. While the UD9004 is in standby, mount the SD Memory Card beforehand.
- The playback method, etc., is determined by the disc, and varies depending on the disc. Refer to the operation guide of the relevant disc.

❑ Playing Bonus View

Press **MODE** button to select the secondary video display you wish to playback.

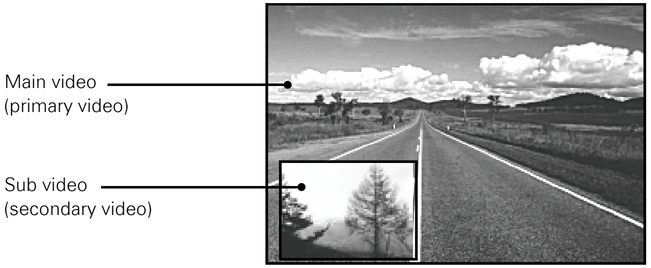
Off ⟶ **1/X** ⟶ **2/X** ⟶ **X/X**



【Selectable item】

Off : Does not display Secondary Video.
1/X ✻ : Displays the first Secondary Video .
2/X ✻ : Displays the second Secondary Video.
X/X ✻ : Displays the X th Secondary Video.

✻ : "X" is the number of Secondary Videos recorded and differs depending on the disc.



【Example】 Bonus view

- Insert or remove a SD Memory Card while the power is in standby. If you insert a SD Memory Card while the power is ON, the SD Memory Card may not be read.
- The SD card used for the Bonus View function must have a capacity of 1GB or greater. Also the SD card must be initialized on the UD9004 (☞page 32).

Getting Started
Connections
Setup
Playback
HDMI Control Function
Information
Troubleshooting
Specifications

Playing Back Super Audio CD

SA-CD

1 **Playback preparation ("Before Playing a Disc" ☞ page 36).**

2 **Select the playback area and layer with SOUND MODE button.**



Multi	: Plays back the multi-channel area of the HD layer.
Stereo	: Plays back the 2-channel area of the HD layer.
CD	: Plays back the CD layer.

※ Pressing ► button plays back the selected area/layer.

❑ When You View the Text or Playback Time Display

See "Media Player Display" (☞ page 37).

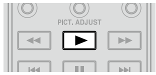
- When playing back disc whose selected area or layer does not exist, select the playback area or layer in the order "Multi", "Stereo", "CD".
- The area/layer selected at **SOUND MODE** button remains in the memory even when the power is turned off.

CD Playback

CD

1 **Playback preparation ("Before Playing a Disc" ☞ page 36).**

2 **Press ► button.**
Playback begins.



❑ When You Look at the Playback Time Display

See "Media Player Display" (☞ page 37).

DVD-Audio Playback

DVD-A

1 **Playback preparation ("Before Playing a Disc" ☞ page 36).**



2 **Select the part for playback with SOUND MODE button.**

Audio	: Plays back the audio part.
Video	: Plays back the video part.

3 **If a top menu is available, select the playback group and track from the top menu, and then play back.**

▲, ▼, ◄, ► ······ Select
ENTER ······ Decision or playback
0 ~ 9, +10 ······ Playback

❑ When You View the Text or Playback Time Display

See "Information Bar Display" (☞ page 36).

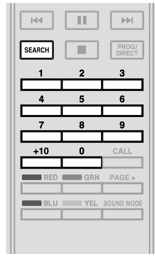
Change Group/Track

1 **During stop or during playback, select search mode with SEARCH button.**
Search mode is displayed in the top right of the screen.

※ The search mode changes each time you press **SEARCH** button.

Group search mode ◄——► Track search mode

2 **Select the playback group and track from the top menu, and then play back.**



0 ~ 9, +10, ENTER

Plays back the group or track of the pressed number

※ See "Looking for Specific Sections Using the Search Modes" (☞ page 44) for instructions on inputting numbers.

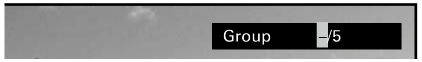
The search mode selected with this operation is memorized until the standby or the disc tray is opened.

Bonus Group playback

DVD-Audio may have a bonus group that can be played back on entry of a password.

1 During stop, select "Group" with SEARCH button.

2 Enter the bonus group number with 0 ~ 9, +10 buttons.





3 Using 0 ~ 9 buttons enter a 4-digit password, and then press ENTER button.

Playback will begin from the 1st track of the selected group.

※ The password may also be entered on the menu screen, so follow the instructions on the screen.

❑ When you enter the wrong password



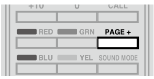
Press **CLEAR** button to erase the input number and then enter the correct number.

Select Still Images

With DVD-Audio with still images, you can select images displayed during playback.

Press PAGE+ button during playback.

The next still image is displayed.



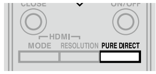
Playing Back High-Quality Audio (Pure Direct Function)

BD | DVD-A | DVD-V | DVD | SA-CD | CD | SD

MP3 | WMA | AAC | LPCM | DivX | JPEG

This enables you to play back high quality audio by stopping the video signal, etc., output, and outputting the analog audio signal only.

Press PURE DIRECT button during stop, and then select pure direct mode.



Off	: This turns off the pure direct function.
On	: This turns off the digital signal output, video signal output and display on the display screen.
User Preset 1 / **User Preset 2**	: Operates with the registered pure direct setting. ("Pure Direct Setup" ☞page 30)

- You cannot use **PURE DIRECT** button while the GUI menu is displayed.
- The pure direct setting returns to "Off" when the UD9004 is put in standby mode.

File Playback

❑ About the File Display

The limits on the number of folders and files that can be displayed by the UD9004 are as follows.
(The limited number includes the root folder.)

- Number of folder directory levels ·················· 8 levels
- Number of folders ··············· 999
- Number of files ··············· 9999
- Number of text display characters
  - · File name, Folder name ··············· 32
  - · Artist name, title, etc. ··············· 60

※ Text more than one line is scroll displayed.

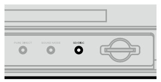
※ If characters not supported on the menu screen are included in a file name, title, artist name or album title, those are not displayed correctly.

File Playback

DVD CD SD
MP3 WMA AAC LPCM DivX JPEG

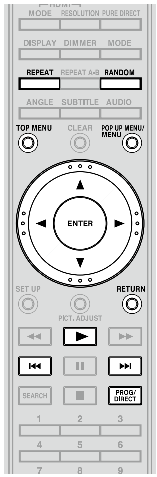
1 **Turn the UD9004 power on.**

2 **Press SD/DISC button, and select the playback media mode.**



DISC MODE : Playing disc

SD CARD MODE : Playing SD memory card



3 **Load media.**
The file browser screen will appear.

※ See "Inserting a Disc" and "Inserting an SD Memory Card" (☞page 6) for how to load media

※ When file browser screen does not appear, press **POP UP MENU/MENU** button.

4 **Select a folder of the data to be played back and press ENTER button.**

▲, ▼, ◄, ►, **ENTER** ··· Display screen selection

RETURN ······························ To next level up

ENTER ······························ To next level down

TOP MENU ······························ To the top level

5 **Press PROG/DIRECT button to select a playback mode.**

All Track Mode : Plays back all files in the media.

Folder Mode : Plays back files in the selected folder. The folder icon is displayed in the playback mode indicator.

6 **Selecting and playing back files.**

▲, ▼ ······························ Select

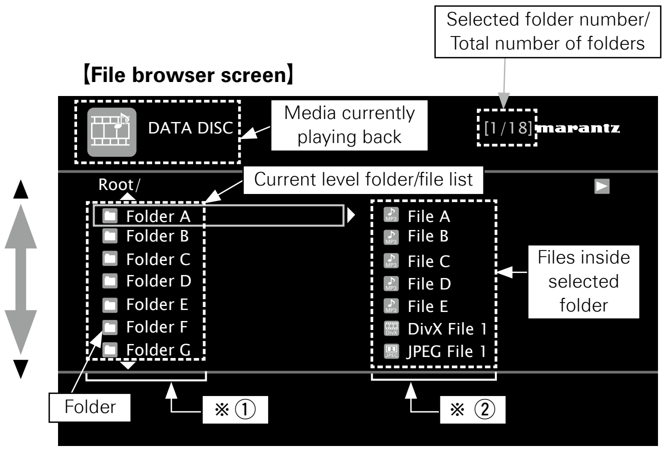
ENTER, ► ······························ Decision or playback

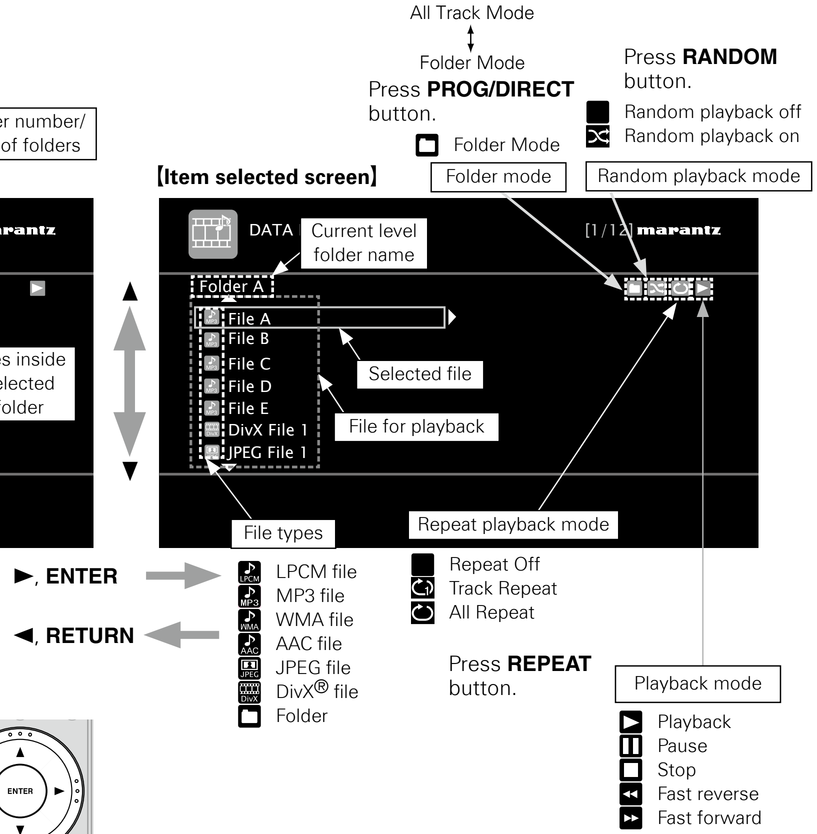
✎

Operation during playback differs depending on the file being played back. See "Operation During Playback" (☞page 42).

About folder and file displays

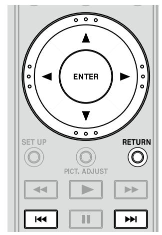
❑ File Browser Screen





❑ To Switch the Page Displayed

Press ►►I button to display the next page.
Press I◄◄ button to display the previous page.



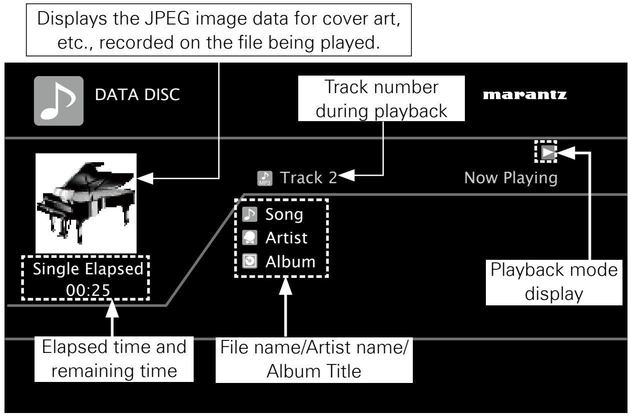
✎

For playable media and files, see "Playable Media" (☞page 3, 4).

Getting Started | Connections | Setup | Playback | HDMI Control Function | Information | Troubleshooting | Specifications

About Screen Display During Playback

Display during Playback of Audio Files

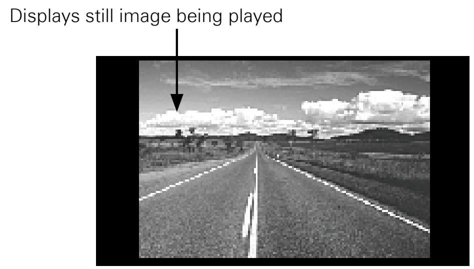


NOTE

The display of JPEG image data for cover art, etc., recorded on the file being played is valid when playing MP3 and AAC audio files.

Display of DivX® Files and JPEG Files





Operation During Playback

Audio file and DivX® file operation

MP3 | WMA | AAC | LPCM | DivX

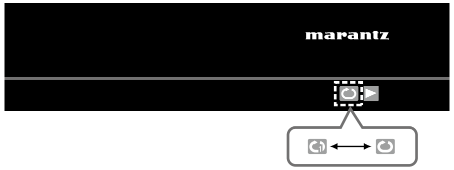
❑ **Playback in Any Order (Random Playback)**

Press **RANDOM** button during stop, and then press **ENTER** or ► button.

❑ **Playing Back Repeatedly (Repeat Playback)**

Press **REPEAT** button to select the repeat playback mode.





Playing Back JPEG File (Still Image)

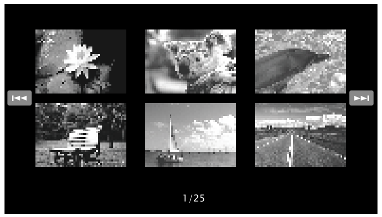
JPEG

Slide show playback of JPEG format still image files stored on CD-R/-RW, DVD-R/-RW/+R/+RW disc and SD Memory Card.

1 Press POP UP MENU/MENU button while the file browser screen is displayed.

The thumbnail screen will appear.

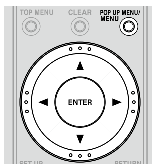
※ Pressing **POP UP MENU/MENU** button while the thumbnail screen is displayed returns you to the file browser screen.



2 Use ▲, ▼, ◄, ► buttons to select still images.

3 Press ENTER button.

Display selected image on full screen.



- Set the image display time on the GUI menu with: "Display Setup" – "Slide Show Time" (☞page 32).
- With a large image file, the display time may be longer than the set time.

❑ **Changing the Still Image being Played Back**

Press ◄◄, ►►I buttons.

- Before playback, or display of next image.

❑ **Pausing the Display**

Press II button.

- To cancel pause, press ► button.

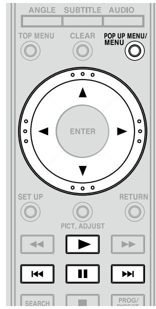
❑ **Changing the Still Image Orientation**

Press ▲, ▼, ◄, ► buttons.

▲, ▼ ···················· 180° rotation

◄ ···················· Rotate 90° left

► ···················· Rotate 90° right



❑ **Returning to Thumbnail Display Screen**

Press **POP UP MENU/MENU** button.

Operations Enabled During Playback

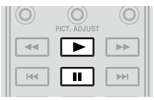
Operations Enabled During Playback

- ❑ **Pause Playback (☞page 43)**
- ❑ **Stop Playback (Resume Function) (☞page 43)**
- ❑ **Skipping to the Chapter/Track/File You Want to Playback (☞page 43)**
- ❑ **Looking for Specific Sections Using the Search Modes (☞page 44)**
- ❑ **Memorizing Locations You Want to Replay (Marker Function) (☞page 45)**
- ❑ **Fast Forward/Fast Reverse (☞page 45)**
- ❑ **Step-by-Step Playback (☞page 45)**
- ❑ **Slow Forward/Slow Reverse Playback (☞page 45)**
- ❑ **Playback in Any Order (Random Playback) (☞page 46)**
- ❑ **Playing Back Repeatedly (Repeat Playback) (☞page 46)**
- ❑ **Repeat Playback between Specified Points (A-B Repeat) (☞page 46)**
- ❑ **Playing back in your preferred order (Program Playback) (☞page 47)**
- ❑ **Switching Audio (☞page 47, 48)**
- ❑ **Changing the Subtitles and Subtitle Style (☞page 48)**
- ❑ **Switching the Angle (☞page 49)**
- ❑ **Changing the Brightness of the Display (Dimmer Control) (☞page 49)**

Pause Playback

BD | DVD-A | DVD-V | DVD | SA-CD | CD | SD

MP3 | WMA | AAC | LPCM | DivX



Press ❚❚ button during playback.
The "❚❚" indicator will light on the display.

※ Resume normal playback by pressing ► button.



✎

If the video is blurred during pause, stop playback and press **SET UP** button, then, on the GUI menu, change "Display Setup" – "Still Mode" – "Field" (☞page 32).

Stop Playback (Resume Function)

BD | DVD-A | DVD-V | DVD | SA-CD | CD | SD

MP3 | WMA | AAC | LPCM | DivX



Press ■ button during playback.
Playback stops.

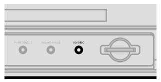
❑ About Resume Function

BD | DVD-A | DVD-V | DVD | DivX

When playback is stopped, the stop position is memorized.

- The "►" indicator flashes on the display. When playing back data from the stop position, press ► button while stop by the resume function.

❑ To Cancel the Resume Function



Perform one of the following operations.

- Press ■ button during stop.
- Open the disc tray.
- Change the playback media mode with **SD/DISC** button.
- Remove the SD Memory Card.

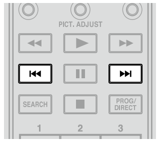
✎

- The resume function does not work with menu playback or BD-J (Blu-ray Disc Java) compatible disc.
- The resume function remains valid even when the standby mode is set. For DivX® files, however, the resume function is cancelled even when the standby mode is set.
- The resume function is cancelled when the power is turned off by unplugging the power cord.

Skipping to the Chapter/Track/File You Want to Playback

BD | DVD-A | DVD-V | DVD | SA-CD | CD | SD

MP3 | WMA | AAC | LPCM | DivX



During playback, press ⏮ or ⏭ button.

⏮ button Playback begins from the start of the chapter/track/file being played.

⏭ button Playback begins from the start of the next chapter/track/file.

※ Continue pressing and skip to the chapter/track/file with just the number of times pressed.

✎

Skipping to the start of a title or group may be prohibited depending on the disc.

Looking for Specific Sections Using the Search Modes

BD DVD-A DVD-V DVD SA-CD CD SD
MP3 WMA AAC LPCM DivX JPEG

1 **During playback, press SEARCH button, and then search mode.**
The search mode setting bar is displayed at the top of the screen.
• The search mode changes each time the button is pressed.

❑ Chapter search



❑ Title search



❑ Track search



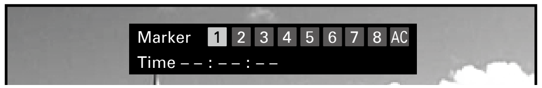
❑ Group search



❑ Time search



❑ Marker search



【Search mode-compatible media and files】

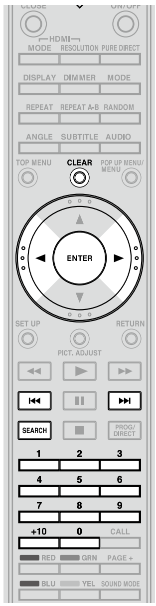
Search mode \ Media / file	BD, DVD-V, DVD	DVD-A	SA-CD, CD	DivX	MP3, WMA, LPCM, JPEG, AAC
Chapter search	○				
Title search	○				
Time search	○	○	○	○	
Marker search ※	○	○		○	
Track search		○	○	○	○
Group search		○			

※ About Marker Search
Plays back from your selected marker number.

• When the entry mode for chapter/title/track/group search continues for about 5 seconds with no operation, it is cancelled.
• When the power is set to standby or the disc is removed, the set marker is deleted.

2 **Conducting search condition entry or setting on the search mode setting bar.**
Search specified location on completion of entry.

0 ~ **9**, **+10** ··························· Number entry
ENTER ··························· Finalizes number
◀, **▶** ··························· Marker number selection
ENTER ·····Finalizes the marker number or plays back
CLEAR ··························· Marker number cancel



• Entering numbers
Entering 3 ·································· **3**, **ENTER**✻
Entering 26 ············ **2**, **6**, **ENTER**✻ or **+10**, **+10**, **6**
Entering 138 ························ **1**, **3**, **8**, **ENTER**✻

✻ : Depending on number of recorded songs or chapters, you don't need to use "ENTER" button.

• Search mode does not operate during program or random playback. Use **I◀◀**, **▶▶I** buttons to cue.
• Time search corresponds with title and track playback time. It is not compatible chapter playback time.
• Search mode may not operate depending on the disc.

Memorizing Locations You Want to Replay (Marker Function)

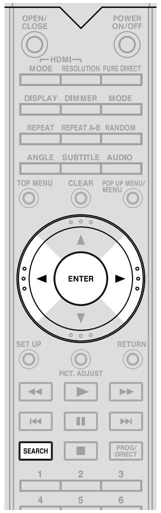
BD DVD-V DVD-A DVD SD DivX

You can attach a marker to a location you want to view or hear again, so that playback begins at that location.

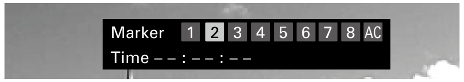
1 During playback, press SEARCH button, and then select "Marker".

The search mode setting bar is displayed at the top of the screen.





2 Use ◀, ▶ buttons to select the number.

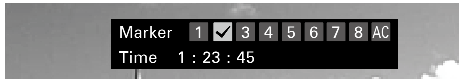


※ Numbers you have already set will be displayed as "✓".

3 Press ENTER button at the location you want to memorize.

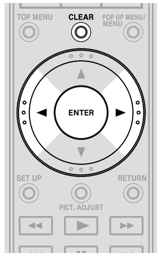
The location is registered for the selected marker number.

※ The elapsed playing time at the set location is displayed.



❑ To Play Back Memorized Locations

Use ◀, ▶ buttons to select the marker number, then press **ENTER** button.



❑ To erase markers

Select the number you want to erase, and then press **CLEAR** button.

❑ To erase all markers

Select "AC" and press **ENTER** button.

✎

- Subtitles may not appear depending on the locations you have memorized.
- The markers you have set will be erased if you turn the power to standby or eject the disc.
- The marker function does not operate across titles and groups.
- Marker search can only be performed during playback.

Fast Forward/Fast Reverse

BD DVD-A DVD-V DVD SA-CD CD SD
MP3 WMA AAC LPCM DivX

During playback, press ◀◀ or ▶▶ button.

- The fast forward/fast reverse speed changes each time the button is pressed.
- Speed varies with the disc and file.

※ Resume normal playback by pressing ▶ button.



✎

- You cannot fast forward/fast reverse across files or tracks during program or random playback.
- Fast forward/fast reverse may be disabled with some DivX® files.
- Audio is not output during fast forward/fast reverse of a BD or DVD.

Step-by-Step Playback

BD DVD-V DivX

Press ❚❚ button during pause.

The disc advances frame by frame each time the button is pressed.

※ Resume normal playback by pressing ▶ button.



✎

- Step-by-step reverse playback is not available with the UD9004.
- If the video is shaky during step-by-step playback, stop playback, press **SET UP** button, then on the GUI menu, change "Display Setup" – "Still Mode" – "Field" (☞page 32).



Slow Forward/Slow Reverse Playback

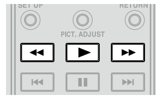
BD DVD-V DVD DivX

Press ◀◀, ▶▶ buttons during pause.

The speed changes each time the button is pressed.

※ The speed of the slow reverse playback is not switched.

※ Resume normal playback by pressing ▶ button.



✎

- Audio is not output during slow forward/slow reverse playback.
- If the video is blurred during slow forward/slow reverse playback, stop playback and press **SET UP** button, then on the GUI menu, change "Display Setup" – "Still Mode" – "Field" (☞page 32).

Playback in Any Order (Random Playback)

SA-CD CD SD MP3 WMA AAC LPCM DivX

1 Press RANDOM button during stop.
The "RAND" lights on the display and "Random Mode" is displayed on the screen.



2 Press ► button to play back.

❑ Resuming Normal Playback

Press **RANDOM** button during stop.

Random playback may not be enabled depending on the disc.

Playing Back Repeatedly (Repeat Playback)

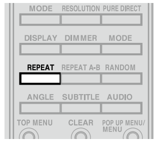
BD DVD-A DVD-V DVD SA-CD CD SD MP3 WMA AAC LPCM DivX JPEG

1 Press REPEAT button during playback.
The repeat mode icon is displayed at the top of the screen.
- The repeat mode changes each time the button is pressed.



2 Press REPEAT button to select the repeat mode.

※ To resume normal playback, press **REPEAT** button, and select "Repeat Off".



About Repeat Mode

Settable repeat modes vary depending on the disc or file you are playing back.

Mode \ Media/File	BD / DVD-V / DVD	DVD-A	SA-CD / CD	MP3 / WMA / AAC / LPCM / DivX / JPEG	Display
Chapter repeat	○				⊂1
Track repeat		○	○	○	
Title repeat	○				⊂
Group repeat		○			
All repeat			○	○	

- Some repeat modes may not be accessible depending on the disc.
- Depending on the disc, even when set to repeat playback, the disc may not return to the start of title or chapter, and may advance to the next scene.
- Repeat playback is not available during A-B repeat playback.

Repeat Playback Between Specified Points (A-B Repeat)

BD DVD-A DVD-V DVD SA-CD CD SD DivX

1 During playback, press REPEAT A-B button at the desired starting point (A).
The "A–" indicator will light on the display.

※ To cancel starting point (A), press **CLEAR** button.

2 Press the REPEAT A-B button again at the desired ending point (B).
The "B" indicator will light on the display, and A-B repeat playback will commence.

※ To resume normal playback, press **REPEAT A-B** button, and select "Repeat Off".



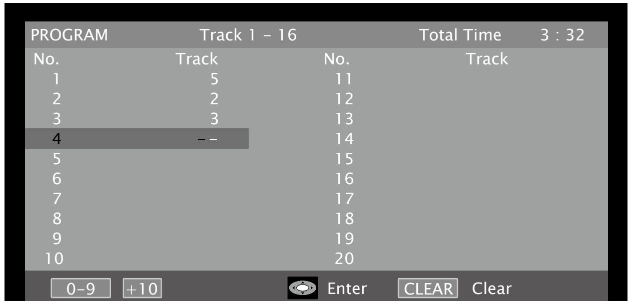
- You cannot skip title/file with A-B repeat.
- If you perform a search operation during A-B repeat playback, A-B repeat playback is cancelled.
- A-B repeat playback may not be enabled depending on the scene.
- A-B repeat playback of MP3/WMA/AAC/JPEG/LPCM files is not available.
- A-B repeat playback is not available during repeat playback.
- A-B repeat playback may not be enabled depending on the DivX® file.

Playing Back in Your Preferred Order (Program Playback)

SA-CD CD

You can program up to a maximum of 20 tracks.

1 Press PROG/DIRECT button during stop.
The "PROG" indicator lights on the display, and the program setting screen appears.



2 Enter the track numbers you want to program on the program setting screen.

0 ~ **9**, **+10** ··········· Entry

ENTER ··········· Decision entry

3 Press ► button.
Playback begins in the programmed order.



❑ Checking the Program Contents

Press ■ button setting playback.
The program setting screen will appear.

You can also check the contents of the program, which appears on the unit's display. Press **CALL** button during stop.

❑ Erasing Programmed Tracks One by One

Press **CLEAR** button during stop.

❑ Erasing All Programmed Contents

Press **PROG/DIRECT** button.

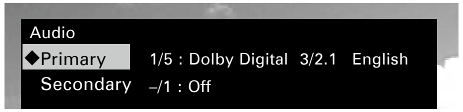
Switching Audio

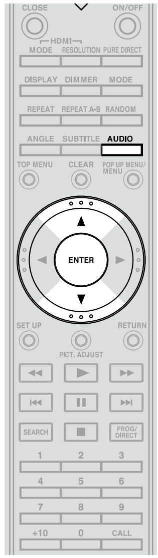
BD DVD-A DVD-V DVD CD SD DivX

With discs and files that have multiple audio track recording, you can change the audio during playback.
With BD, you can set sub-track audio such as interactive audio and commentary audio, etc., with "Secondary".

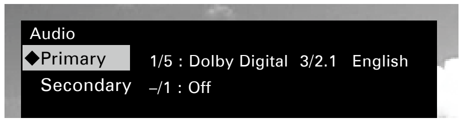
Switching a BD's Primary Audio/Secondary Audio

1 During playback of an Primary Audio/Secondary Audio title, press AUDIO button.
The audio number currently being played is displayed.





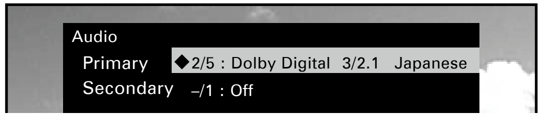
2 Press ▲, ▼ buttons, select "Primary" or "Secondary", and then press ENTER button.



※ If multiple audio items are recorded, "the current audio number/number of recorded audio items" is displayed.

※ When "BD Audio Mode" is set to "HD Audio Output" (☞page 33), "Secondary" audio is not output.

3 Select your desired audio language with ▲, ▼ buttons.



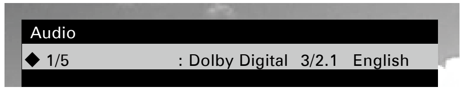
4 Press AUDIO button.
The setup screen disappears.

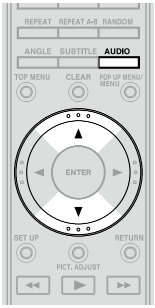
- Depending on the disc, audio switching may be restricted to operation of the disc menu. In this case, switch the audio on the disc menu.
- Be sure to set "BD Audio Mode" to "Mix Audio Output" (☞page 33) for playing back secondary audio.
- Depending on the BD, even if picture-in-picture playback is set to "Off", Secondary Audio only may be output.

Audio Switching (Media Other than BD)

1 Press AUDIO button during playback.
The audio number currently being played is displayed.

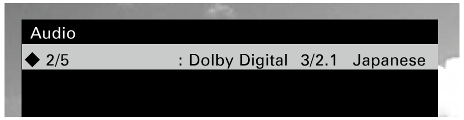
[Example] DVD





2 Use ▲, ▼ buttons to select audio

[Example] DVD-Video



3 Press AUDIO button.
The setup screen disappears.

- With DVD-R/-RW with bilingual soundtrack recording, you can switch between "Main" (main audio) and "Sub" (secondary audio) or "Main/Sub" (main audio + secondary audio).
- In CD audio mode, you can switch "Stereo", "L-ch" (left channel) or "R-ch" (right channel).
- With a DivX® file, "MP3" or "Dolby Digital" audio formats and the number of recorded audio modes are displayed. "– – –" appears for audio other than these.
- With DTS-CD (5.1 music disc), you cannot switch audio modes.

Changing the Subtitles and Subtitle Style

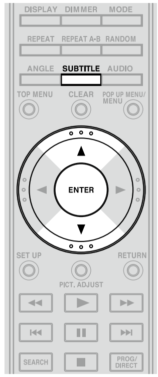
BD DVD-V SD DivX

During playback of a disc or file with recorded subtitles, you can switch subtitle on/off as well as subtitle language.
With BD, you can change the style of displayed subtitles.

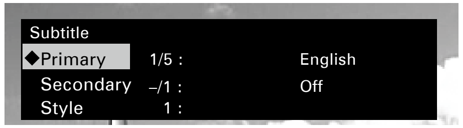
Switching a BD's Primary Subtitle/Secondary Subtitle and Subtitle Style

1 Press SUBTITLE button during playback.
The subtitle number currently being played is displayed.

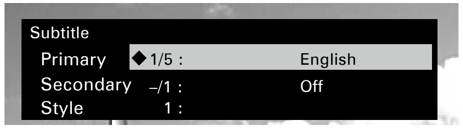




2 With ▲, ▼ buttons, select "Primary", "Secondary" and "Style", and then press ENTER button.



3 Use ▲, ▼ buttons to select your desired subtitle language and subtitle style.



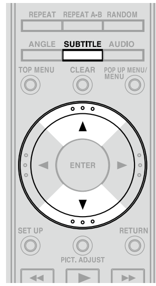
4 Press SUBTITLE button.
The setup screen disappears.

- If a disc does not include subtitles and subtitle style, "Not Available" is displayed.
- Depending on the disc, subtitle switching may be restricted to operation of the disc menu. In this case, switch the subtitles on the disc menu.

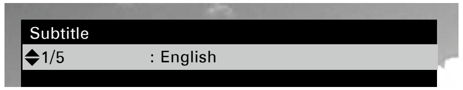
Selecting DVD-Video and DivX® file Subtitle

1 Press SUBTITLE button during playback.
The subtitle number currently being played is displayed.





2 Use ▲, ▼ buttons to select subtitle.



With a DivX® file, the currently playing subtitle number and number of recorded subtitles are displayed, the language option is not displayed.

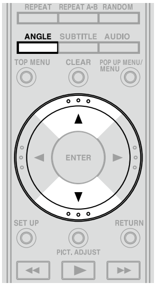
Switching the Angle

BD DVD-V

During playback of a BD or DVD-Video recorded with several camera angles, you can change the angle.

1 Press ANGLE button during playback.
The angle number currently being played is displayed.





2 Use ▲, ▼ buttons to select angle.



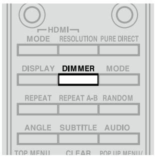
3 Press ANGLE button.
The setup screen disappears.

NOTE

Angle changing may be restricted, depending on the disc.

Changing the Brightness of the Display (Dimmer Control)

Press DIMMER button.
The display brightness each time the button is pressed.



→ Normal → Dim → Dark → Off ─┐ (returns to Normal)

Even when "Off" is selected, the status of operations that are performed appears momentarily on the display if "Display Setup" – "Temporary Display" on the GUI menu is set to "On" (☞page 32).

HDMI Control Function

When you make an HDMI connection with a TV or AV Amp compatible with UD9004 and HDMI control functions, you can perform the following operations by setting the HDMI control function of each device.

❏ TV or AV Amp power is turned on by operating the UD9004, and functions change with UD9004 input.

❏ Turning off the TV's power turns the UD9004's power to standby.

❏ Operating the UD9004 via the TV's remote control.

(When the TV's remote control has player operation buttons)

NOTE

- The HDMI control function controls operations of a TV that is compatible with the HDMI control function. Make sure that the TV and HDMI are connected when you perform HDMI control.
- Some functions may not operate depending on the connected TV or AV Amp. Check the owner's manual of each device for details beforehand.
- When "Other Setup" – "Power Saving" on the GUI menu is set to "Power Saving Standby" or "Normal Standby" (☞page 32), the player's power cannot be turned on using the HDMI control function.
- When "HDMI Setup" – "HDMI Control" – "Power Off Control" on the GUI menu is set to "Off" (☞page 26), the UD9004 is not set to standby even if the connected device is in the standby mode.

1 Set the HDMI output terminal corresponding with the HDMI control function.
On the GUI menu, set "HDMI Setup" – "HDMI Control" (☞page 26).

※ The HDMI control function will work only on one of the 2 HDMI output terminals on the UD9004.

2 Turn the power on for all the equipment connected by HDMI cable.

3 Set the HDMI control function for all equipment connected by HDMI cable.
On the GUI menu, set the UD9004 with "HDMI Setup" – "HDMI Control" (☞page 26).

※ Please refer to the owner's manual as regards setting of connected devices.
※ Carry out Steps 2 and 3 should any of the equipment be unplugged.

4 To ensure that the UD9004's HDMI video output is projected on the TV screen, change the input function of the TV and AV Amp.

5 When you turn the TV's power to standby, check that the power of the UD9004 and AV Amp also goes on standby.

If the HDMI control function does not operate properly, check the following points.

- Is the TV or AV Amp compatible with the HDMI control function?
- Is the setting of the UD9004's HDMI output terminal correct? (Step 1)
- Are the HDMI control function settings of all equipment correct? (Step 3)
- After setting, did you add another HDMI device connection or make any changes in the connections? In this case, perform setting again.

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Connections
Setup
Playback
HDMI Control Function
Information
Troubleshooting
Specifications

Other Information

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Language Code List

	Language	Code
A	Abkhazian	4748
	Afar	4747
	Afrikaans	4752
	Albanian	6563
	Amharic	4759
	Arabic	4764
	Armenian	5471
	Assamese	4765
	Aymara	4771
	Azerbaijani	4772
B	Bashkir	4847
	Basque	5167
	Bengali;Bangla	4860
	Bhutani	5072
	Bihari	4854
	Bislama	4855
	Breton	4864
	Bulgarian	4853
	Burmese	5971
	Byelorussian	4851
C	Cambodian	5759
	Catalan	4947
	Chinese	7254
	Corsican	4961
	Croatian	5464
	Czech	4965
D	Danish	5047
	Dutch	6058
E	English	5160
	Esperanto	5161
	Estonian	5166
F	Faroese	5261
	Fiji	5256
	Finnish	5255
	French	5264
	Frisian	5271
G	Galician	5358
	Georgian	5747
	German	5051
	Greek	5158
	Greenlandic	5758
	Guarani	5360
	Gujarati	5367
H	Hausa	5447
	Hebrew	5569
	Hindi	5455
	Hungarian	5467

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I	Icelandic	5565
	Indonesian	5560
	Interlingua	5547
	Interlingue	5551
	Inupiak	5557
	Irish	5347
	Italian	5566
J	Japanese	5647
	Javanese	5669
K	Kannada	5760
	Kashmiri	5765
	Kazakh	5757
	Kinyarwanda	6469
	Kirghiz	5771
	Kirundi	6460
	Korean	5761
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S	Samoan	6559
	Sangho	6553
	Sanskrit	6547
	Scots Gaelic	5350
	Serbian	6564
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	Urdu	6764
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	Volapuk	6861
W	Welsh	4971
	Wolof	6961
X	Xhosa	7054
Y	Yiddish	5655
	Yoruba	7161
Z	Zulu	7267

Country Code List

	Country	Code
A	AFGHANISTAN	AF
	ÅLAND ISLANDS	AX
	ALBANIA	AL
	ALGERIA	DZ
	AMERICAN SAMOA	AS
	ANDORRA	AD
	ANGOLA	AO
	ANGUILLA	AI
	ANTARCTICA	AQ
	ANTIGUA AND BARBUDA	AG
	ARMENIA	AM
	ARUBA	AW
	AZERBAIJAN	AZ
B	BAHAMAS	BS
	BAHRAIN	BH
	BANGLADESH	BD
	BARBADOS	BB
	BELARUS	BY
	BELIZE	BZ
	BENIN	BJ
	BERMUDA	BM
	BHUTAN	BT
	BOLIVIA	BO
	BOSNIA AND HERZEGOVINA	BA
	BOTSWANA	BW
	BOUVET ISLAND	BV
	BRITISH INDIAN OCEAN TERRITORY	IO
	BRUNEI DARUSSALAM	BN
	BULGARIA	BG
	BURKINA FASO	BF
	BURUNDI	BI
C	CAMBODIA	KH
	CAMEROON	CM
	CAPE VERDE	CV
	CAYMAN ISLANDS	KY
	CENTRAL AFRICAN REPUBLIC	CF
	CHAD	TD
	CHRISTMAS ISLAND	CX
	COCOS (KEELING) ISLANDS	CC
	COMOROS	KM
	CONGO	CG
	CONGO, THE DEMOCRATIC REPUBLIC OF THE	CD
	COOK ISLANDS	CK
	COSTA RICA	CR
	CÔTE D'IVOIRE	CI
	CROATIA	HR
	CUBA	CU
	CYPRUS	CY
	CZECH REPUBLIC	CZ
D	DJIBOUTI	DJ
	DOMINICA	DM
	DOMINICAN REPUBLIC	DO
E	ECUADOR	EC
	EGYPT	EG
	EL SALVADOR	SV
	EQUATORIAL GUINEA	GQ
	ERITREA	ER
	ESTONIA	EE
	ETHIOPIA	ET
F	FALKLAND ISLANDS (MALVINAS)	FK
	FAROE ISLANDS	FO
	FIJI	FJ
	FRENCH GUIANA	GF
	FRENCH POLYNESIA	PF
	FRENCH SOUTHERN TERRITORIES	TF
G	GABON	GA
	GAMBIA	GM
	GEORGIA	GE
	GHANA	GH
	GIBRALTAR	GI
	GREENLAND	GL
	GRENADA	GD
	GUADELOUPE	GP
	GUAM	GU
	GUATEMALA	GT
	GUERNSEY	GG
	GUINEA	GN
	GUINEA-BISSAU	GW
	GUYANA	GY
H	HAITI	HT
	HEARD ISLAND AND MCDONALD ISLANDS	HM
	HOLY SEE (VATICAN CITY STATE)	VA
	HONDURAS	HN
	HUNGARY	HU
I	ICELAND	IS
	IRAN, ISLAMIC REPUBLIC OF	IR
	IRAQ	IQ
	ISLE OF MAN	IM
	ISRAEL	IL
J	JAMAICA	JM
	JERSEY	JE
	JORDAN	JO
K	KAZAKHSTAN	KZ
	KENYA	KE
	KIRIBATI	KI
	KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF	KP
	KUWAIT	KW
	KYRGYZSTAN	KG
L	LAO PEOPLE'S DEMOCRATIC REPUBLIC	LA
	LATVIA	LV
	LEBANON	LB
	LESOTHO	LS
	LIBERIA	LR
	LIBYAN ARAB JAMAHIRIYA	LY
	LIECHTENSTEIN	LI
	LITHUANIA	LT
M	MACAO	MO
	MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF	MK
	MADAGASCAR	MG
	MALAWI	MW
	MALDIVES	MV
	MALI	ML
	MALTA	MT
	MARSHALL ISLANDS	MH
	MARTINIQUE	MQ
	MAURITANIA	MR
	MAURITIUS	MU
	MAYOTTE	YT
	MICRONESIA, FEDERATED STATES OF	FM
	MOLDOVA	MD
	MONACO	MC
	MONGOLIA	MN
	MONTENEGRO	ME
	MONTSERRAT	MS
	MOROCCO	MA
	MOZAMBIQUE	MZ
	MYANMAR	MM
N	NAMIBIA	NA
	NAURU	NR
	NEPAL	NP
	NETHERLANDS ANTILLES	AN
	NEW CALEDONIA	NC
	NICARAGUA	NI
	NIGER	NE
	NIGERIA	NG
	NIUE	NU
	NORFOLK ISLAND	NF
	NORTHERN MARIANA ISLANDS	MP
O	OMAN	OM
P	PALAU	PW
	PALESTINIAN TERRITORY, OCCUPIED	PS
	PANAMA	PA
	PAPUA NEW GUINEA	PG
	PARAGUAY	PY
	PERU	PE
	PITCAIRN	PN
	PUERTO RICO	PR
Q	QATAR	QA
R	RÉUNION	RE
	ROMANIA	RO
	RWANDA	RW
S	SAINT BARTHÉLEMY	BL
	SAINT HELENA	SH
	SAINT KITTS AND NEVIS	KN
	SAINT LUCIA	LC
	SAINT MARTIN	MF
	SAINT PIERRE AND MIQUELON	PM
	SAINT VINCENT AND THE GRENADINES	VC
	SAMOA	WS
	SAN MARINO	SM
	SAO TOME AND PRINCIPE	ST
	SAUDI ARABIA	SA
	SENEGAL	SN
	SERBIA	RS
	SEYCHELLES	SC
	SIERRA LEONE	SL
	SLOVAKIA	SK
	SLOVENIA	SI
	SOLOMON ISLANDS	SB
	SOMALIA	SO
	SOUTH AFRICA	ZA
	SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS	GS
	SRI LANKA	LK
	SUDAN	SD
	SURINAME	SR
	SVALBARD AND JAN MAYEN	SJ
	SWAZILAND	SZ
	SYRIAN ARAB REPUBLIC	SY
T	TAJIKISTAN	TJ
	TANZANIA, UNITED REPUBLIC OF	TZ
	TIMOR-LESTE	TL
	TOGO	TG
	TOKELAU	TK
	TONGA	TO
	TRINIDAD AND TOBAGO	TT
	TUNISIA	TN
	TURKEY	TR
	TURKMENISTAN	TM
	TURKS AND CAICOS ISLANDS	TC
	TUVALU	TV
U	UGANDA	UG
	UKRAINE	UA
	UNITED ARAB EMIRATES	AE
	UNITED STATES MINOR OUTLYING ISLANDS	UM
	URUGUAY	UY
	UZBEKISTAN	UZ
V	VANUATU	VU
	VATICAN CITY STATE	VA
	VENEZUELA	VE
	VIET NAM	VN
	VIRGIN ISLANDS, BRITISH	VG
	VIRGIN ISLANDS, U.S.	VI
W	WALLIS AND FUTUNA	WF
	WESTERN SAHARA	EH
Y	YEMEN	YE
Z	ZAMBIA	ZM
	ZIMBABWE	ZW

Explanation of Terms

Numerics

4:3 letterbox
When a wide (16 : 9) disc is played back by connecting a 4 : 3 TV and the UD9004, this function plays back the image with black area at the top and bottom.

4:3 pan-and-scan
When a wide (16 : 9) disc is played back by connecting a 4 : 3 TV and the UD9004, this function cuts left and right of the played back image to the 4 : 3 size according to the disc's control information.

A

Anamorphic lens
This lens enlarges the 16 : 9 image to 2.35 : 1 image when projecting the image using a projector.

Aspect ratio
This is the length and width ratio of the TV screen. The conventional TV's screen ratio is 4 : 3 and the wide screen TV's screen ratio is 16 : 9.

B

BD-J (Java)
With BD-Videos, there are fun software with more interactive functions (games) using Java applications.

Bit rate
This expresses the read amount per 1 second of video/audio data recorded in a disc.

Blu-ray disc
This is one-side 1 layer disc having 25GB capacity and can record high vision video movie and games.

Bonus View
Special images for BD-Videos. It includes comment of the movie director, simultaneously developing sub-story, and images from different angles.

C

Chapter
This is a break intended by a producer who organizes the title of BD or DVD-Video. The chapter search function searches the beginning of this break.

D

Deep Color
This technology allows expression of more number of colors than the conventional 8 bits and can reproduce colors close to natural ones without color streak.

DHCP (Dynamic Host Configuration Protocol)
This mechanism automatically perform network configuration such as IP address for network devices including UD9004, PC, and broadband router.

Dolby Digital (5.1ch Surround)
This is a stereophonic effect developed by Dolby Laboratories. This is maximum 5.1 channels of independent multi-channel audio system.

Dolby Digital Plus
This is an extension version of Dolby Digital and is a high sound quality digital audio technology adopted as an optional audio for Blu-ray disc.

Dolby TrueHD
This lossless coding technology is adopted as optional audio for Blu-ray disc and supports 7.1 channels.

Downmix
This function converts the number of channels of surround audio to less number of channels and plays back.

DTS
This is an abbreviation of Digital Theater System, which is a digital audio system developed by DTS. When playing back audio by connecting this system with a device such as DTS amplifier, accurate sound field position and realistic sound effect as if you are in a movie theater can be obtained.

DTS-HD
This audio technology provides higher sound quality and enhanced functionality than the conventional DTS and is adopted as an optional audio for Blu-ray disc. This technology supports multi-channel, high data transfer speed, high sampling frequency, and lossless audio playback. Maximum 7.1 channels are supported in Blu-ray disc.

Dynamic range
The difference between the maximum undistorted sound level and the minimum sound level that is discernible above the noise emitted by the device.

F

Finalise
This is processing that enables playing back of disc of BD/DVD/CD, which was recorded using a recorder, by other players.

H

HDCP
When transmitting digital signals between devices, this copyright protection technology encrypts the signals to prevent content from being copied without authorization.

HDMI
This is an abbreviation of High-Definition Multimedia Interface, which is an AV digital interface that can be connected to a TV or amplifier. Video signal and audio signal can be connected using 1 cable.

I

Interlacing (interlaced scanning)
This conventional method used to project images on a TV displays 1 frame of image in half and half, respectively as 2 fields.

Interactive audio
Audio such as click sound that is generated during operation and is recorded in the title of BD-Videos.

L

LFE
This is an abbreviation of Low Frequency Effect, which is an output channel that emphasizes low frequency effect sound. Surround audio is intensified by outputting 20Hz to 120Hz deep bass.

Linear PCM
This signal is uncompressed PCM (Pulse Code Modulation) signal. This is the same system as the CD audio but this uses 192kHz, 96kHz, and 48kHz sampling frequencies in BD or DVD and provides higher sound quality than CD.

M

MPEG
This is an abbreviation of Moving Picture Experts Group, which is an international standard of the moving picture audio compression method. Images of BD and DVD are recorded using this method.

P

Picture-in-picture
This BD-Video function allows you to view making or commentary scenes in the secondary video while viewing the main story in the primary video.

Popup menu
This menu recorded in BD software. While playing back a BD, this menu can be displayed on the front of the screen and can be operated.

Primary audio
This audio signal is recorded in the main story in BD-Video.

Progressive (sequential scanning)
This is a scanning system of video signal that displays 1 frame of video as one image. Compared to the interlace system, this system provides images with less flickering and bleeding.

R

Rating
Depending on the age of the viewer, this function restricts playing back of BD-Video or DVD-Video. UD9004 can be set to restrict viewing in 0 to 254 level for BD-Video, and 1 to 8 level for DVD-Video.

Region code
This code indicates country or region where the BD or DVD-Video can be played back.

S

Secondary audio
This is audio signals of comment of movie director and other data recorded in the bonus view of BD-Video.

T

Title
This is the unit of content that consists of chapters of BD or DVD -Video. Some BD or DVD-Video may include multiple titles.

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Troubleshooting

If a problem should arise, first check the following:
1. Are the connections correct?
2. Is the set being operated as described in the owner's manual?
3. Are the other components operating properly?

If this unit does not operate properly, check the items listed in the table below. Should the problem persist, there may be a malfunction.
In this case, disconnect the power immediately and contact your store of purchase.

Symptom	Cause / Countermeasure	Page
Power does not turn on.	• Check if the power cord is properly connected. • Plug the power supply cord into the power outlet. • The safety protection device may be activated. Unplug the power cord once, and wait for 5-10 seconds and then plug it in again. • UD9004 enters the standby status by safety function when the fan stops. Check the back of the set if something is disturbing the fan rotation.	22 – – 3, 9
Unable to play back bonus view.	• Does the SD Memory Card has more than 1GB of available space? • Has the SD Memory Card been initialized by the UD9004? • Was the SD Memory Card inserted while the power of the unit is on. (Insert the SD Memory Card while the UD9004 is in the standby status.)	4, 38 32 4, 38
Picture does not appear.	• Switch the TV's input setting to the external input connected to the player. • Is the Pure Direct function set to "On"? Set to "Off". Also, is "Pure Direct Setup" – "Video Out" on the GUI menu set to "Off" at the "User Preset 1" or "User Preset 2" setting? Set it to "On". • Check the connection of the video/S-Video/component video cable. • Does the "Video Setup" – "Component Resolution" setting on the GUI menu match the connected device's resolution? Set it so that it matches.	– 30, 40 19 26
Video and audio are not output with HDMI connection.	• Check the connection of the HDMI cable. • Is the "HDMI" indicator of the display of the UD9004 lighting? • Is the Pure Direct function set to "On"? Set to "Off". Also, is "Pure Direct Setup" – "Video Out" on the GUI menu set to "Off" at the "User Preset 1" or "User Preset 2" setting? Set it to "On". • Check whether the connected display device or other device supports HDCP. This unit will not output a video signal unless the other device supports HDCP. See the owner's manual of your TV, AV Amp, etc. • Check that the setting of the HDMI video resolution supports the resolution of the connected device. When set to "Auto", UD9004 makes the setting automatically. • Check that the HDMI mode setting matches the connected content. The connection method of each HDMI mode is different.	13, 14 8 30, 40 16 15 13, 14
HD audio is not output.	• Set "BD Audio Mode" to "HD Audio Output".	33
Picture is not displayed or is disturbed. Picture of a BD-Video or DVD-Video disc is in black and white.	• The picture may be slightly disturbed directly after fast-forwarding or reversing. This is not a malfunction. • Connect the UD9004's video/S-Video/component video output either directly to the TV or to the TV via the AV Amp. Do not connect via a VCR (video cassette recorder). Some discs include copy prohibit signals, and when such discs are played via a VCR the copy guard system may cause the picture to be disturbed. • Is a disc that is not compatible with the player or a disc with a different region number loaded? (This player supports region code "A" for BD-Video discs, "1" or "ALL" for DVD-Video discs.)	– 19 3
No sound is heard or the sound is hard to hear.	• Check the devices whose audio is connected and the speaker connections. • Is the power of devices whose audio is connected turned on? Is the input selection set to the input to which the UD9004 is connected? • Is the audio output properly selected?	11 ~ 22 – 13 ~ 21
Picture freezes momentarily during playback.	• When the disc is scratched or contaminated with fingerprints, the disc may not be played back correctly. Clean the disc or replace with a non-scratched disc. • There may be a problem with the data recorded on the disc.	6 –
Playback does not start even when ► is pressed, or starts but stops immediately.	• Is there condensation inside the player or on the disc? (Let set for 1 to 2 hours with the power off.) • When the disc is scratched or contaminated with fingerprints, the disc may not be played back correctly. Clean the disc or replace with a non-scratched disc. • Is the disc loaded upside-down? Load the disc properly, with the side containing the signals to be played facing down. • Is an unplayable disc loaded?	3 6 6 3, 4
Subtitles are not displayed.	• Subtitles cannot be displayed for BD-Video, DVD-Video or DivX® files that do not contain subtitles. • Is the subtitle setting "Off"? Use a disc menu or to set the **SUBTITLE** button displayed subtitle.	48 25
SD Memory Card cannot be read.	• The format of the card does not match to this unit or the card is not compatible. • Is the playback media mode set to "SD CARD MODE"? Select "SD CARD MODE" at **SD/DISC** button.	32 36

Symptom	Cause / Countermeasure	Page
No return to start-up screen when disc is removed.	• There may be an internal error. Set the power to standby, wait awhile, then turn the power back on.	–
The set cannot be operated with the remote control unit.	• Aim the remote control directly at infrared sensor window on the front of the unit. • Operate within a distance of 7 meters from the remote control sensor. • Remove the obstacle. • Replace the batteries with new ones. • Insert the batteries in the proper direction, checking the ⊕ and ⊖ marks. • Make the signal code of the remote control match to the signal code of the unit.	7 7 – 7 7 7
Buttons do not work or the unit stops responding.	• Operations may not be permitted by the disc. • The safety protection device may be activated. Unplug the power cord once, and wait for 5-10 seconds and then plug it in again. • Refer to the instructions of the disc.	– – –
Playable disc is not read.	• The pickup lens may be dirty. Before requesting servicing, try cleaning the laser pickup with a commercially available lens cleaner. (Do not use a cleaner with brush because it may damage the lens.)	–
Angle does not switch.	• If a BD-Video or DVD-Video does not record multiple angles, angle cannot be switched. Also, multiple angles may be recorded for specific scenes.	49
Playback does not start when the title is selected.	• Playback may be prohibited by the viewing restriction setting. Check the “Ratings” setting on the GUI menu.	31
The password for rating level has been forgotten.	• On the GUI menu, perform the “Other Setup” – “Initialize” procedure.	33

- Some function may not be used in some operation status and this is not failure of the unit. Read the description in this Owner’s Manual for details on correct operations.
- The volume may differ from disc to disc. This is due to the differences in how the signals are recorded on the disc, and is not a malfunction.
- During programmed playback, it is not possible to perform random playback or to start playback from the desired track or file.
- Some functions are prohibited on some discs.

Specifications

❑ Audio performance

Signal format : NTSC

Applicable discs /memory cards :
(1) BD-Video discs :
12 cm 1 side 1 layer, 12 cm 1 side 2 layers
(2) DVD-Video / DVD-Audio discs :
12 cm 1 side 1 layer, 12 cm 1 side 2 layers /
12 cm 2 sides 2 layers (1 side 1 layer)
8 cm 1 side 1 layer, 8 cm 1 side 2 layers /
8 cm 2 sides 2 layers (1 side 1 layer)
(3) Super Audio CDs :
12 cm 1 layer / 12 cm 2 layer / 12 cm Hybrid
(4) Compact Discs (CD-DA) :
12 cm / 8 cm discs
(5) Memory cards :
SD Memory Card / SDHC Memory Card / miniSD Card / microSD Card

S-Video output :
Y output level : 1Vp-p (75 Ω/ohms)
C output level : 0.286 Vp-p
Output terminal : S-Video, 1 set

Video output :
Output level : 1Vp-p (75 Ω/ohms)
Output terminal : Pin-jack, 1 set

Component video output :
Y output level : 1Vp-p (75 Ω/ohms)
Pb/Cb output level / Pr/Cr output level : 0.648 Vp-p (75 Ω/ohms)
Output terminal : Pin-jack, 1 set

HDMI output :
Output terminal : 19-pin HDMI terminals, 2 sets
HDMI ver. 1.3a
(Deep Colour, Dolby Digital Plus, Dolby TrueHD, DTS-HD)

Analog audio output :
Output level : 2 Vrms (10 kΩ/kohms)
2 channels output terminal : XLR terminal, 1 set
7.1 channels output terminal : Pin-jack, 1 set

Audio output characteristics :
(1) Frequency response
① BD (Multi linear PCM) : 2Hz ~ 22kHz (48kHz sampling)
: 2Hz ~ 44kHz (96kHz sampling)
: 2Hz ~ 88kHz (192kHz sampling)
② DVD (Multi linear PCM) : 2Hz ~ 22kHz (48kHz sampling)
: 2Hz ~ 44kHz (96kHz sampling)
: 2Hz ~ 88kHz (192kHz sampling)
③ Super Audio CD : 2Hz ~ 100kHz
④ CD : 2Hz ~ 20kHz
(2) S/N ratio : 125dB
(3) Total harmonic distortion : 1kHz 0.0008%
(4) Dynamic range : 112dB

Digital audio output :
Optical digital output: Optical connector, 1 set
Coaxial digital output: Pin jack, 1 set

❑ General

Power supply : AC 120 V, 60 Hz

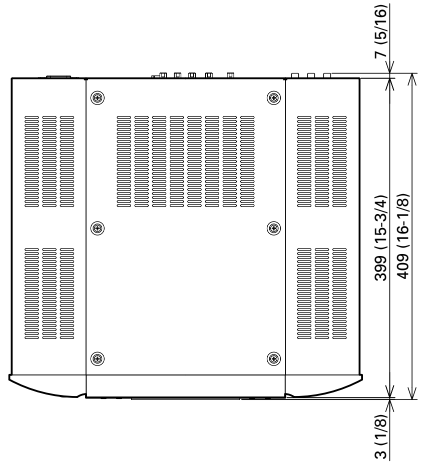
Power consumption : 88 W
(☞page 32 "Power Saving")
- When in Power Saving Standby : 0.3 W
- When in Normal Standby : 0.8 W
- When in HDMI Control Mode :
  4 ~ 15 W (Changes according to connection status, etc.)
- When in Quick Start Mode :
  15 ~ 30 W (Changes according to connection status, etc.)

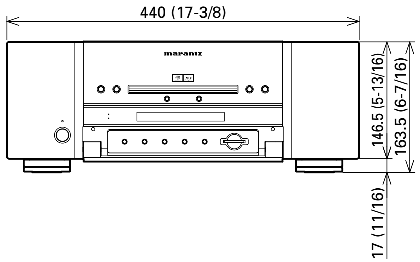
❑ Remote control unit

Remote control type : Infrared pulse

Batteries : AAA/R03 Type (three batteries)

❑ Dimensions (Unit: mm (inch))





❑ Weight : 19.2kg

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❑ Exhibit-C

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    Jean-loup Gailly   Mark Adler
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❑ Exhibit-E

The Independent JPEG Group's JPEG software

README for release 6b of 27-Mar-1998

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Serious users of this software (particularly those incorporating it into larger programs) should contact IJG at jpeg-info@uunet.uu.net to be added to our electronic mailing list. Mailing list members are notified of updates and have a chance to participate in technical discussions, etc.

This software is the work of Tom Lane, Philip Gladstone, Jim Boucher, Lee Crocker, Julian Minguillon, Luis Ortiz, George Phillips, Davide Rossi, Guido Vollbeding, Ge' Weijers, and other members of the Independent JPEG Group.

IJG is not affiliated with the official ISO JPEG standards committee.

DOCUMENTATION ROADMAP

This file contains the following sections:

OVERVIEW	General description of JPEG and the IJG software.
LEGAL ISSUES	Copyright, lack of warranty, terms of distribution.
REFERENCES	Where to learn more about JPEG.
ARCHIVE LOCATIONS	Where to find newer versions of this software.
RELATED SOFTWARE	Other stuff you should get.
FILE FORMAT WARS	Software *not* to get.
TO DO	Plans for future IJG releases.

Other documentation files in the distribution are:

User documentation:

install.doc	How to configure and install the IJG software.
usage.doc	Usage instructions for cjpeg, djpeg, jpegtran, rdjpgcom, and wrjpgcom.
*.1	Unix-style man pages for programs (same info as usage.doc).
wizard.doc	Advanced usage instructions for JPEG wizards only.
change.log	Version-to-version change highlights.

Programmer and internal documentation:

libjpeg.doc	How to use the JPEG library in your own programs.
example.c	Sample code for calling the JPEG library.
structure.doc	Overview of the JPEG library's internal structure.
filelist.doc	Road map of IJG files.
coderules.doc	Coding style rules --- please read if you contribute code.

Please read at least the files install.doc and usage.doc. Useful information can also be found in the JPEG FAQ (Frequently Asked Questions) article. See ARCHIVE LOCATIONS below to find out where to obtain the FAQ article.

If you want to understand how the JPEG code works, we suggest reading one or more of the REFERENCES, then looking at the documentation files (in roughly the order listed) before diving into the code.

OVERVIEW

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings.

This software implements JPEG baseline, extended-sequential, and progressive

compression processes. Provision is made for supporting all variants of these

processes, although some uncommon parameter settings aren't implemented yet.

For legal reasons, we are not distributing code for the arithmetic-coding

variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting

the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djpeg", which use the library to perform conversion between JPEG and some other popular image file formats.

The library is intended to be reused in other applications. In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.

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ansi2knr.c is NOT covered by the above copyright and conditions, but instead by the usual distribution terms of the Free Software Foundation; principally, that you must include source code if you redistribute it. (See the file ansi2knr.c for full details.) However, since ansi2knr.c is not needed as part of any program generated from the IJG code, this does not limit you more than the foregoing paragraphs do.

The Unix configuration script "configure" was produced with GNU Autoconf.

It is copyright by the Free Software Foundation but is freely distributable.

The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software.

(Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.)

So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files.

To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

We are required to state that

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REFERENCES

We highly recommend reading one or more of these references before trying to understand the innards of the JPEG software.

The best short technical introduction to the JPEG compression algorithm is

Wallace, Gregory K. "The JPEG Still Picture Compression Standard", Communications of the ACM, April 1991 (vol. 34 no. 4), pp. 30-44.

(Adjacent articles in that issue discuss MPEG motion picture compression, applications of JPEG, and related topics.) If you don't have the CACM issue handy, a PostScript file containing a revised version of Wallace's article is available at ftp://ftp.uu.net/graphics/jpeg/wallace.ps.gz. The file (actually a preprint for an article that appeared in IEEE Trans. Consumer Electronics) omits the sample images that appeared in CACM, but it includes corrections and some added material. Note: the Wallace article is copyright ACM and IEEE, and it may not be used for commercial purposes.

A somewhat less technical, more leisurely introduction to JPEG can be found in "The Data Compression Book" by Mark Nelson and Jean-loup Gailly, published by M&T Books (New York), 2nd ed. 1996, ISBN 1-55851-434-1. This book provides good explanations and example C code for a multitude of compression methods including JPEG. It is an excellent source if you are comfortable reading C code but don't know much about data compression in general. The book's JPEG sample code is far from industrial-strength, but when you are ready to look at a full implementation, you've got one here...

The best full description of JPEG is the textbook "JPEG Still Image Data Compression Standard" by William B. Pennebaker and Joan L. Mitchell, published by Van Nostrand Reinhold, 1993, ISBN 0-442-01272-1. Price US$59.95, 638 pp.

The book includes the complete text of the ISO JPEG standards (DIS 10918-1 and draft DIS 10918-2).

This is by far the most complete exposition of JPEG in existence, and we highly recommend it.

The JPEG standard itself is not available electronically; you must order a paper copy through ISO or ITU. (Unless you feel a need to own a certified official copy, we recommend buying the Pennebaker and Mitchell book instead; it's much cheaper and includes a great deal of useful explanatory material.)

In the USA, copies of the standard may be ordered from ANSI Sales at (212) 642-4900, or from Global Engineering Documents at (800) 854-7179. (ANSI doesn't take credit card orders, but Global does.) It's not cheap: as of 1992, ANSI was charging $95 for Part 1 and $47 for Part 2, plus 7% shipping/handling. The standard is divided into two parts, Part 1 being the actual specification, while Part 2 covers compliance testing methods. Part 1 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 1: Requirements and guidelines" and has document numbers ISO/IEC IS 10918-1, ITU-T T.81. Part 2 is titled "Digital Compression and Coding of Continuous-tone Still Images, Part 2: Compliance testing" and has document numbers ISO/IEC IS 10918-2, ITU-T T.83.

Some extensions to the original JPEG standard are defined in JPEG Part 3, a newer ISO standard numbered ISO/IEC IS 10918-3 and ITU-T T.84. IJG currently does not support any Part 3 extensions.

The JPEG standard does not specify all details of an interchangeable file format. For the omitted details we follow the "JFIF" conventions, revision 1.02. A copy of the JFIF spec is available from:

Literature Department
C-Cube Microsystems, Inc.
1778 McCarthy Blvd.
Milpitas, CA 95035
phone (408) 944-6300, fax (408) 944-6314

A PostScript version of this document is available by FTP at ftp://ftp.uu.net/graphics/jpeg/jfif.ps.gz. There is also a plain text version at ftp://ftp.uu.net/graphics/jpeg/jfif.txt.gz, but it is missing the figures.
The TIFF 6.0 file format specification can be obtained by FTP from ftp://ftp.sgi.com/graphics/tiff/TIFF6.ps.gz. The JPEG incorporation scheme found in the TIFF 6.0 spec of 3-June-92 has a number of serious problems.
IJG does not recommend use of the TIFF 6.0 design (TIFF Compression tag 6).
Instead, we recommend the JPEG design proposed by TIFF Technical Note #2 (Compression tag 7). Copies of this Note can be obtained from ftp.sgi.com or from ftp://ftp.uu.net/graphics/jpeg/. It is expected that the next revision of the TIFF spec will replace the 6.0 JPEG design with the Note's design.
Although IJG's own code does not support TIFF/JPEG, the free libtiff library uses our library to implement TIFF/JPEG per the Note. libtiff is available from ftp://ftp.sgi.com/graphics/tiff/.
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You can also obtain this software in DOS-compatible "zip" archive format from the SimTel archives (ftp://ftp.simtel.net/pub/simtelnet/msdos/graphics/), or on CompuServe in the Graphics Support forum (GO CIS:GRAPHSUP), library 12 "JPEG Tools". Again, these versions may sometimes lag behind the ftp.uu.net release.
The JPEG FAQ (Frequently Asked Questions) article is a useful source of general information about JPEG. It is updated constantly and therefore is not included in this distribution. The FAQ is posted every two weeks to Usenet newsgroups comp.graphics.misc, news.answers, and other groups.
It is available on the World Wide Web at http://www.faqs.org/faqs/jpeg-faq/ and other news.answers archive sites, including the official news.answers archive at rtfm.mit.edu: ftp://rtfm.mit.edu/pub/usenet/news.answers/jpeg-faq/.
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RELATED SOFTWARE
Numerous viewing and image manipulation programs now support JPEG. (Quite a few of them use this library to do so.) The JPEG FAQ described above lists some of the more popular free and shareware viewers, and tells where to obtain them on Internet.
If you are on a Unix machine, we highly recommend Jef Poskanzer's free PBMPLUS software, which provides many useful operations on PPM-format image files. In particular, it can convert PPM images to and from a wide range of other formats, thus making cjpeg/djpeg considerably more useful. The latest version is distributed by the NetPBM group, and is available from numerous sites, notably ftp://wuarchive.wustl.edu/graphics/graphics/packages/NetPBM/.
Unfortunately PBMPLUS/NETPBM is not nearly as portable as the IJG software is; you are likely to have difficulty making it work on any non-Unix machine.
A different free JPEG implementation, written by the PVRG group at Stanford,
is available from ftp://havefun.stanford.edu/pub/jpeg/. This program is designed for research and experimentation rather than production use; it is slower, harder to use, and less portable than the IJG code, but it is easier to read and modify. Also, the PVRG code supports lossless JPEG, which we do not. (On the other hand, it doesn't do progressive JPEG.)
FILE FORMAT WARS
Some JPEG programs produce files that are not compatible with our library.
The root of the problem is that the ISO JPEG committee failed to specify a concrete file format. Some vendors "filled in the blanks" on their own, creating proprietary formats that no one else could read. (For example, none of the early commercial JPEG implementations for the Macintosh were able to exchange compressed files.)
The file format we have adopted is called JFIF (see REFERENCES). This format has been agreed to by a number of major commercial JPEG vendors, and it has become the de facto standard. JFIF is a minimal or "low end" representation.
We recommend the use of TIFF/JPEG (TIFF revision 6.0 as modified by TIFF Technical Note #2) for "high end" applications that need to record a lot of additional data about an image. TIFF/JPEG is fairly new and not yet widely supported, unfortunately.
The upcoming JPEG Part 3 standard defines a file format called SPIFF.
SPIFF is interoperable with JFIF, in the sense that most JFIF decoders should be able to read the most common variant of SPIFF. SPIFF has some technical advantages over JFIF, but its major claim to fame is simply that it is an official standard rather than an informal one. At this point it is unclear whether SPIFF will supersede JFIF or whether JFIF will remain the de-facto standard. IJG intends to support SPIFF once the standard is frozen, but we have not decided whether it should become our default output format or not.
(In any case, our decoder will remain capable of reading JFIF indefinitely.)
Various proprietary file formats incorporating JPEG compression also exist.
We have little or no sympathy for the existence of these formats. Indeed, one of the original reasons for developing this free software was to help force convergence on common, open format standards for JPEG files. Don't use a proprietary file format!
TO DO
The major thrust for v7 will probably be improvement of visual quality.
The current method for scaling the quantization tables is known not to be very good at low Q values. We also intend to investigate block boundary smoothing, "poor man's variable quantization", and other means of improving quality-vs-file-size performance without sacrificing compatibility.
In future versions, we are considering supporting some of the upcoming JPEG Part 3 extensions — principally, variable quantization and the SPIFF file format.
As always, speeding things up is of great interest.
Please send bug reports, offers of help, etc. to jpeg-info@uunet.uu.net.

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You can also contact us individually at:

David Turner <david.turner@freetype.org>
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